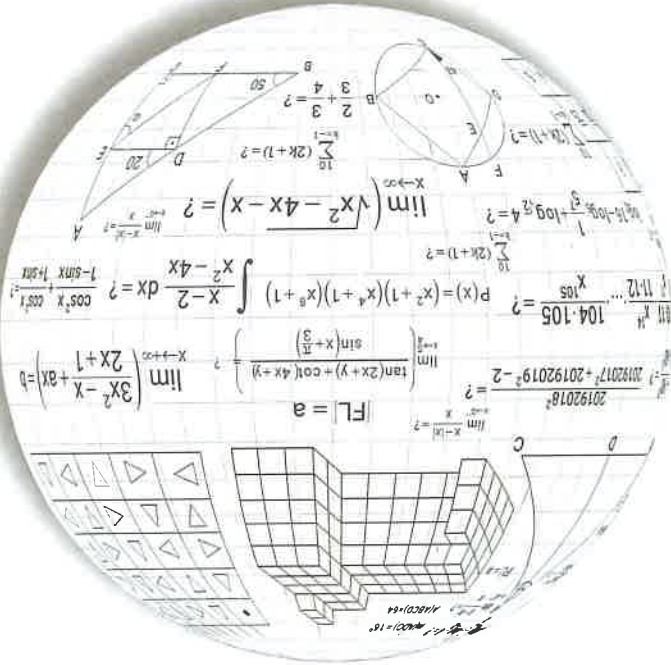


30

ÖZELDEN GENELE
DENEME SINAVI
SPECIAL TO GENERAL
TRIAL EXAM

YÖS

Yeni Tarz Sorular New Style Questions



GALATA YÖS-SAT YAYINLARI



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ÖNSÖZ

Değerli öğretmen ve sevgili öğrencilerimiz; Galata Eğitim kurumları, 2005'ten bugüne YÖS, SAT ve TÖMER sınavlarına hazırlanan öğrencilerimize eğitim öğretim yanısıra rehberlik hizmetleri de veren bir eğitim kurumudur. Kurumumuz ülkemizde YÖS'e girecek öğrencilerle birlikte dünyanın farklı yerlerinden ülkemize gelen uluslararası öğrencilere de YÖS'e hazırlama aşamasında şu hizmetleri vermektir;

- Ders çalışma teknikleri
- Üniversite ve bölüm bilgileri
- Başvuru ve tercih aşamasında rehberlik hizmetleri

Öğrencilerimiz bu aşamalardan doğru yönlendirmelerle geçerek, adım adım başarıya ulaşması sağlanmaktadır.

Elinizde bulunan 30 Özelede Genele Deneme kitabı 80 sorudan oluşmaktadır ve her denemenin ilk 40 sorusu yeni, diğer 40 sorusu ise eski konulardan olacak şekilde sarmal sisteme göre hazırlanmıştır. Üniversitelerin son yıllarda YÖS'te sormuş oldukları yeni tarz sorulara göre hazırlanmıştır. Bütün konuları kapsayacak şekilde her tarz sorudan hazırlanan kitabımız, sizleri başarıya ulaştıracak ve sınavlarda karşınıza çıkacak sorularda pratiklik kazandıracaktır. Değerli öğretmen ve sevgili öğrencilerimize faydalı olması dileğiyle.

FOREWORD

Dear teacher and dear students;

Galata Eğitim Kurumları is an educational institution that provides guidance services as well as education to our students who are preparing for YÖS, SAT, and TÖMER exams since 2005. Our institution provides the following services to international students coming to our country from different parts of the world as well as students who will enter YÖS in our country;

- Study techniques
- University and department information
- Guidance services at the application and selection stage

Our students are enabled to achieve success step by step, bypassing through these stages with the right guidance.

The 30 Special to General trial book you have is composed of 80 questions, and each trial exam has been prepared according to the spiral system, with the first 40 questions being new and the other 40 questions from old topics. It has been prepared according to the new style questions that universities have asked in YÖS in recent years. Our book, which is prepared from all kinds of questions in a way to cover all subjects, will make you successful and give you practically in the questions you will encounter in exams. We hope it will be useful to our dear teachers and students.

AÇIKLAMA

30 Özelden Genelle deneme kitabının özelliği:

80 sorudan oluşan bu kitabımızda her denemede 30 matematik, 30 IQ ve 20 geometri sorusu vardır.

80 soruluk her denemenin ilk 40 sorusu yeni konu, diğer 40 sorusu da eski konuları kapsayacak şekilde hazırlanmıştır.

Öğrencilerin en iyi öğrenme ve pekiştirme durumlarınıza dikkate alınarak, sarmal sistemle hazırlanan bu kitapta hem konuları anlayıp anlamadığınızı göreceğiz hem de, yeni nesil bütün soru geliştirilenden sorular çözümü olacaktır.

YÖS'te bir ilk olan bu deneme kitabı sizleri hayalinizdeki üniversite ve bölüme taşıyacaktır.

EXPLANATION

Feature of 30 Special to General trial book:

In this book of 80 questions, there are 30 math, 30 IQ, and 20 geometry questions in each trial.

The first 40 questions of each 80-question trial were prepared in a way to cover the new topic and the other 40 questions to cover the old topics.

In this book prepared with a spiral system, taking into account the best learning and reinforcement situations of the students, you will see whether you understand the topics and solve questions from all kinds of new generation questions.

This trial exams book is a first in YÖS, will take you to your dream university and department.

3. KENAN } 52921
 VARAN } 62821
 YALAN } 32821
 SARAN } 72921
 KALAN } 34121

A) 3272864
 C) 3247864
 B) 3272164
 D) 2272864
 E) 2171864

⇒ KAVALYE = ?

♠ MELIKE = EMILEK
 ♠ ♠ ♠ MELIKE = ?
 A) EMILEK
 B) EKILEM
 C) LIMKE
 D) MELKE
 E) MELIKE

A) 2421
 B) 1125
 C) 5425
 D) 5112
 E) 5241

2. 2421 } 212/
 5425 } 112/
 1125 } 12/
 5112 } 11/
 5241 } 12/1

⇒ 112/? = ?

5. RESIM = EMRIS
 HALIL = LILAH
 ATIKE = ?
 A) EKITA
 B) AKITE
 C) AKIET
 D) ETIKA
 E) KIAET

A) 15
 B) 17
 C) 19
 D) 22
 E) 25

1. ? ☆ ■ ? △ } 12543
 ? ☆ ■ ? △ } 93251
 ? ☆ ■ ? △ } 42132
 ? ☆ ■ ? △ } 35416
 ? ☆ ■ ? △ } 25314

⇒ ▼ + ■ + ♠ + ● = ?

4. MERHABA ☺ = REMABAH
 TÜRKIYE ☺ = RKYÜTE
 FAKÜLTE ☺ = KÜTLAFE
 KATILIM ☺ = ?
 A) IITKAL
 B) IITAKML
 C) TIILAKM
 D) TIIAKML
 E) AKMLTII

7. YIL = ★★
 SELAM = ?
 YOLU = ●★★
 VATAN = ?

- A) ★★☆☆
- B) ★★●★
- C) ★★☆☆●●
- D) ●●●★
- E) ●●●★●●

8. SIVAS = 00110
 YAVUŞ = 00110
 KALTIM = ?
 SATILIM = ?

- A) 0101010
- B) 0101011
- C) 0100111
- D) 111000
- E) 1010100

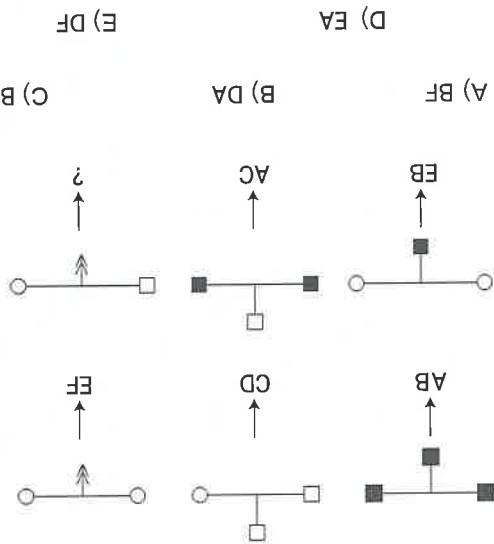
9. SEL = ?
 YEL = ?
 ERA = ?

- A) 123
- B) 345
- C) 135
- D) 680
- E) 246

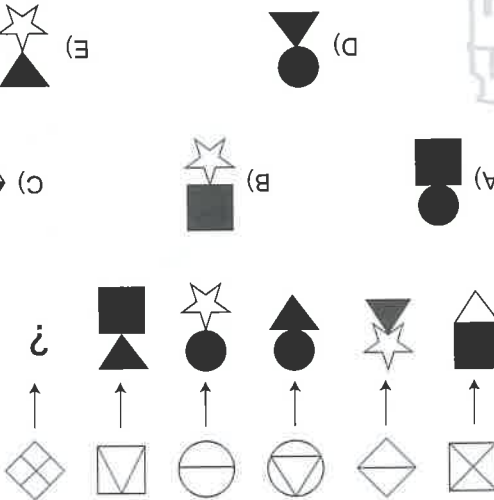
- A) 123
- B) 345
- C) 246
- D) 680
- E) 468

- A) 478
- B) 886
- C) 845
- D) 468
- E) 645

12.



11.



10.

(x, y) (z, t) (p, y) (t, y) (t, t) (z, p) (x, r)
 (K, L) (M, N) (O, L) (S, N) (M, O) ?
 ↑ ↑ ↑ ↑ ↑
 A) K, S B) M, K C) O, N D) S, L E) O, S

A) K, S B) M, K C) O, N D) S, L E) O, S

13. KALBALIK = 123242361 GALATA = ?

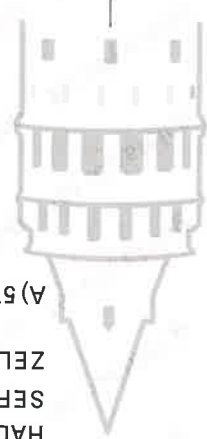
- A) 423252
- B) 123242
- C) 223292
- D) 543424
- E) 823272

14. DÜZCELL MEHMET = ?

- A) 1234517
- B) 1234567
- C) 1234567
- D) 1233567
- E) 1234567

15. SELA ● = SELE
 AMIR ★ = MIRA
 (HİFA) ★ = ?

- A) İFEH
- B) FİHA
- C) İFHE
- D) FİAH
- E) HİFA



16. HİFA
 LİVA
 SAFA
 SİRA
 HAVA

- A) 47
- B) 58
- C) 52
- D) 63
- E) 86

⇒ SİLA = ?

17. SAHI
 GAFI
 HALI
 SEFI
 ZELI

- A) 57
- B) 27
- C) 38
- D) 56
- E) 16

⇒ SAFI = ?

18.

SEL, KEL = - + +
 SIR, SUR = + + +
 HALE, JALE = ?

- A) - + + +
- B) - - + +
- C) - - - +
- D) + - - -
- E) - - - +

29. $(k)(r)(d)(n)(z)(g)(s)(c) = (3)(4)(1)(5)(8)(7)(6)(2)$
 $(n)(s)(r)(d)(k)(c) = ?$

- A) 56123 B) 231465 C) 327648
 D) 321684 E) 561432

2. $\left(3^{-1+4^{-1}} + \left(\frac{5}{12}\right)^{-1}\right)^2 = ?$

- A) -1 B) 2 C) -2 D) 3 E) 1

30. TASE
 SICA
 KATA
 TCDE
 2961 7493 ⇒ CEKI = ?
 2371 8323

- A) 9184 B) 7186 C) 8384 D) 6739 E) 8421
 A) $a < b < c$
 B) $a < c < b$
 C) $c < b < a$
 D) $b < c < a$
 E) $c < a < b$

3. $a = \frac{11}{20}$ $b = \frac{111}{200}$ $c = \frac{1111}{2000}$
 $\Rightarrow ? < ? < ?$

1. $\frac{3}{4} - \frac{4}{5} = ?$

- A) $\frac{5}{13}$ B) $\frac{5}{18}$ C) $\frac{5}{21}$ D) $\frac{5}{23}$ E) $\frac{5}{27}$

4. $x \neq 0, y \neq 0$ olmak üzere
 $\frac{x'0,y}{x',0y} + \frac{x',xy}{x',xy} - \frac{y',x}{y',x} = ?$

- A) 20 B) 10 C) $\frac{1}{10}$ D) 0 E) -10

5. $a = -2,3456$

$b = -2,3456$

$c = -2,3456$

$d = -2,3456$

A) $b < a < c < d$

B) $c < b < a < d$

C) $d < c < b < a$

D) $a < b < c < d$

E) $d < a < c < b$

6.
$$\frac{3 + \frac{3}{1} - \left(\frac{3}{1} - 2\right)}{4 - \frac{1}{2} + \left(\frac{1}{2} + 6\right)} = ?$$

- A) 10 B) 2 C) 1 D)
- $\frac{2}{1}$
- E)
- $\frac{1}{10}$

7.
$$1 - \frac{1}{1 - \frac{1}{1 - \frac{1}{x}}} = ?$$

- A)
- $1+x$
- B)
- $1-x$
- C)
- $-x$
- D)
- x
- E)
- $x-1$

10. $\frac{10}{x}$ sayısı $\frac{100}{y}$ sayısının kaç katıdır? How many times $\frac{10}{x}$ is $\frac{100}{y}$?

- A)
- $\frac{10y}{x}$
- B)
- $\frac{10x}{y}$
- C)
- $\frac{x}{10y}$
- D)
- $\frac{10}{xy}$
- E)
- $\frac{10}{xy}$

9.
$$\frac{0,1}{0,1 + 0,01} - \frac{0,001}{0,001 + 0,01} = ?$$

- A) 0,1 B) 0,2 C) 10 D) 20 E) 100

8. Bir kesrin değeri $\frac{5}{3}$ dir. Bu kesrin paydasından 5 çıkarılırsa kesrin değeri $\frac{3}{2}$ oluyor. İkinci kesrin paydası ve payı arasındaki fark kaçtır?

The value of a fraction $\frac{5}{3}$. If 5 is subtracted from the denominator of this fraction, the value of the fraction becomes $\frac{3}{2}$. What is the difference between the denominator and the numerator of the second fraction?

- A) 5 B) 10 C) 12 D) 15 E) 18

11. x pozitif bir ondalık sayıdır. $x + \frac{40}{1}$ bir tam sayı olduğuna göre x 'in virgülden sonraki kısmı kaçtır ?
 Since x is a positive decimal number and $x + \frac{40}{1}$ is an integer, what is the part of x after the comma ?
- A) ... , 025 B) ... , 075 C) ... , 125
 D) ... , 250 E) ... , 975

12. a, b, c negatif tamsayılar $\frac{7}{a} = \frac{8}{b} = \frac{9}{c}$ olduğuna göre a, b, c sıralaması nasıldır ?
 What is the order of a, b, c since these numbers are negative integers and $\frac{7}{a} = \frac{8}{b} = \frac{9}{c}$?
- A) $a < b < c$
 B) $a < c < b$
 C) $c < a < b$
 D) $c < b < a$
 E) $b < a < c$

14. $\frac{56}{1} + \frac{72}{1} + \frac{90}{1} = ?$

- A) $\frac{70}{3}$ B) $\frac{90}{13}$ C) $\frac{10}{7}$ D) $\frac{20}{3}$ E) $\frac{40}{3}$

15. $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{3}}}} = ?$

- A) $\frac{18}{11}$ B) $\frac{3}{1}$ C) $\frac{11}{18}$ D) 3 E) 1

13. $\left(1 - \frac{3}{1}\right)\left(1 + \frac{3}{1}\right)\left(1 + \frac{9}{1}\right)\left(1 + \frac{81}{1}\right) = 1 - \frac{3^a}{1}$

ise a kaçtır ?
 What is a ?

- A) 2 B) 4 C) 6 D) 8 E) 10

16. $\frac{1}{11} < a < b < \frac{4}{11}$ sıralamasında birbirini izleyen sayılar arasındaki farklar eşittir. Buna göre $a + b$ kaçtır ?

The differences between the consecutive numbers in the order are equal. Accordingly, what is $a+b$?

- A) $\frac{4}{5}$ B) $\frac{4}{7}$ C) $\frac{4}{11}$ D) $\frac{4}{13}$ E) 1

17. $3 + \frac{2 + \frac{3}{x}}{5} = 4 \Rightarrow \frac{3x-1}{3x+1} = ?$

- A) $\frac{3}{2}$ B) $\frac{2}{1}$ C) $\frac{3}{5}$ D) 2 E) 3

20. $(6:3):3 = ?$

- A) -1 B) $\frac{3}{2}$ C) $\frac{9}{4}$ D) 4 E) 6

18. a, b, c ardışık tek sayılardır. a, b, c are consecutive odd numbers.

$$\left(1 + \frac{a}{2}\right) \left(1 + \frac{b}{2}\right) \left(1 + \frac{c}{2}\right) = 3$$

$$\Rightarrow a+b+c = ?$$

- A) 9 B) 15 C) 21 D) 27 E) 33

21. $x = 0,2$ ve $y = 0,02 \Rightarrow \frac{1}{x} + \frac{1}{y} = ?$

- A) 50,25 B) 55 C) 55,25 D) 75 E) 100

19. $x = \frac{2a+b}{a-b}$ olduğuna göre x 'in y cinsinden ifadesi hangisidir ?
Accordingly, what is y in terms of x ?

A) $\frac{y}{y-1}$ B) $\frac{y}{y+1}$ C) $\frac{y}{y+2}$ D) $\frac{y-1}{y}$ E) $\frac{y}{2}$

$$29. \left(1 - \frac{9}{1}\right) \left(1 - \frac{16}{1}\right) \left(1 - \frac{25}{1}\right) \dots \left(1 - \frac{2500}{1}\right) = ?$$

A) $\frac{1}{25}$

B) $\frac{1}{50}$

C) $\frac{17}{25}$

D) $\frac{51}{125}$

E) 1

A) 12 B) 15 C) 18 D) 21 E) 24

28. a ve b tam sayılar. a and b are integers. olduğuna göre $3a + 3b$ kaçtır? accordingly, what is $3a + 3b$?

$$\frac{3a+b-7}{1} + \frac{a-2b+6}{1} = 1$$

28. a ve b tam sayılar. a and b are integers.

$$y = \frac{10^2}{3} + \frac{10^3}{3} + \frac{10^4}{3} + \dots$$

$$\Rightarrow x + y = ?$$

$$30. x = 0,2 + 0,02 + 0,002 + \dots$$

A) $\frac{19}{90}$

B) $\frac{23}{90}$

C) $\frac{29}{90}$

D) $\frac{31}{90}$

E) $\frac{9}{2}$

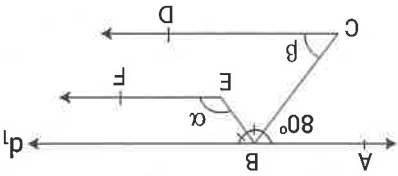
$$1. d_1 // [EF // [CD$$

$$m(\widehat{ABC}) = 80^\circ$$

$$m(\widehat{BEF}) = \alpha$$

$$m(\widehat{BCD}) = \beta$$

$$\alpha - \beta = ?$$



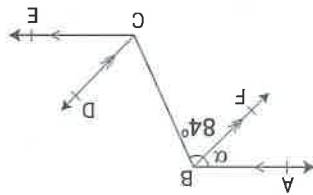
A) 30 B) 40 C) 50 D) 60 E) 70

Geometri Geometry

YÖS

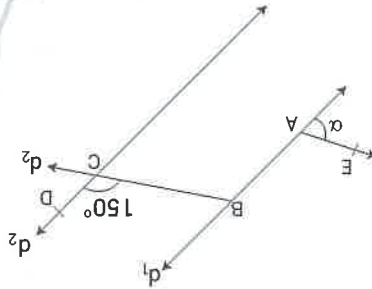
KTS 1

2. $BA \parallel CE$
 $BF \parallel CD$
 $m(\widehat{CBF}) = 84^\circ$
 $m(\widehat{BCE}) = 144^\circ$
 $\alpha = ?$



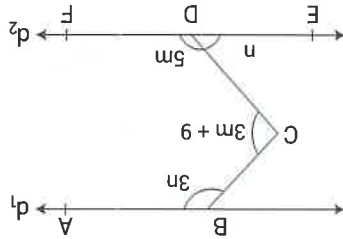
- A) 34 B) 44 C) 54 D) 60 E) 64

3. $d_1 \parallel d_2$
 $AE \parallel BC$
 $m(\widehat{BCD}) = 150^\circ$
 $\alpha = ?$



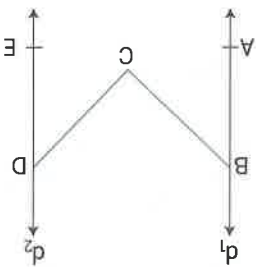
- A) 30 B) 40 C) 100 D) 120 E) 150

4. $d_1 \parallel d_2$
 $m(\widehat{ABC}) = 3n$
 $m(\widehat{BCD}) = 3m+9$
 $m(\widehat{CDF}) = 5m$
 $m(\widehat{CDE}) = n$
 $n = ?$



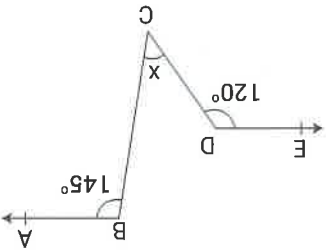
- A) 45 B) 50 C) 55 D) 60 E) 65

5. $d_1 \parallel d_2$
 $m(\widehat{ABC}) = 7x$
 $m(\widehat{CDE}) = 9x$
 $m(\widehat{BCD}) = 160$
 $x = ?$



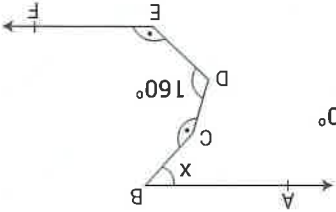
- A) 10 B) 12 C) 14 D) 16 E) 20

6. $BA \parallel DE$
 $m(\widehat{EDC}) = 120^\circ$
 $m(\widehat{ABC}) = 145^\circ$
 $m(\widehat{DCB}) = x = ?$



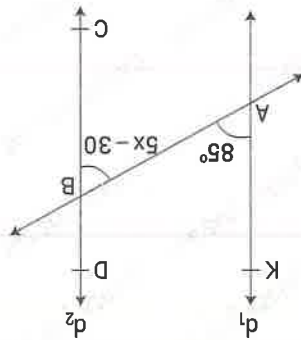
- A) 60 B) 65 C) 70 D) 75 E) 85

7. $BA \parallel EF$
 $m(\widehat{DEF}) = m(\widehat{BCD}) = 110^\circ$
 $m(\widehat{CDE}) = 160^\circ$
 $x = ?$



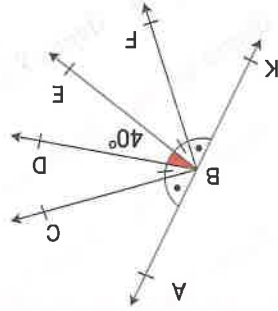
- A) 10 B) 20 C) 30 D) 40 E) 50

8. $d_1 // d_2$
 $m(\widehat{ABC}) = 5x - 30$
 $m(\widehat{KAB}) = 85^\circ$
 $x = ?$



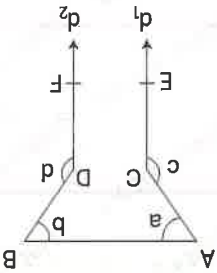
- A) 23 B) 25 C) 26 D) 29 E) 30

9. A, B, C doğrusal
A, B, C are linear
 $m(\widehat{ABC}) = m(\widehat{KBF})$
 $m(\widehat{CBD}) = m(\widehat{EBF})$
 $m(\widehat{DBE}) = 40^\circ$
 $m(\widehat{ABD}) = ?$



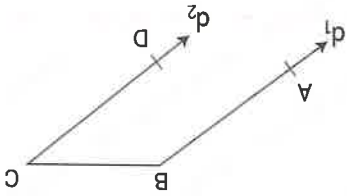
- A) 40 B) 50 C) 60 D) 70 E) 80

10. $d_1 // d_2$
 $m(\widehat{CAB}) = a$
 $m(\widehat{ABD}) = b$
 $m(\widehat{ACE}) = c$
 $m(\widehat{BDF}) = d$
a, b, c, d arasındaki ilişki nedir?
What is the relation between a, b, c, d?



- A) $c+d-a-b=180$
B) $a+b-c-d=180$
C) $c-d+a-b=180$
D) $a+c-b-a=180$
E) $a+c-b-d=180$

11. $d_1 // d_2$
 $m(\widehat{ABC}) = 110$
 $m(\widehat{DCB})$ 'nin tümleri kaç derecedir?
How many degrees in the complementary to $m(\widehat{DCB})$?

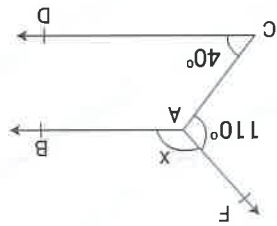


- A) 15 B) 20 C) 70 D) 110 E) 115

12. Bir açının bütünleri tümünün iki katından 40° fazla ise bu açı kaç derecedir?
If the supplementary of an angle is 40 times more than twice the complementary, how many degrees is that angle?

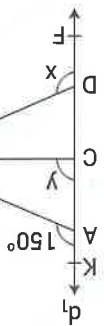
- A) 30 B) 40 C) 45 D) 50 E) 60

13. $AB \parallel CD$
 $m(\widehat{ACD}) = 40^\circ$
 $m(\widehat{CAF}) = 110^\circ$
 $x = ?$



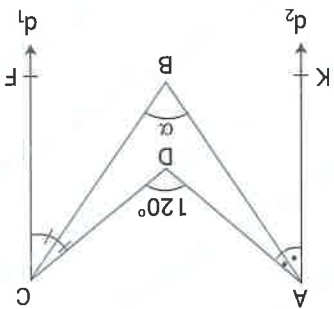
- A) 100 B) 110 C) 120 D) 130 E) 140

14. $d_1 \parallel d_2$
 $m(\widehat{ABC}) = m(\widehat{CBD}) = m(\widehat{DBE})$
 $m(\widehat{KAB}) = 150^\circ$
 $m(\widehat{BDF}) = x$
 $m(\widehat{ACB}) = y$
 $x - y = ?$



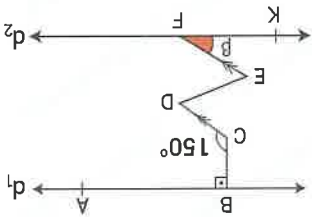
- A) 20 B) 30 C) 40 D) 50 E) 60

15. $d_1 \parallel d_2$
 $m(\widehat{KAB}) = m(\widehat{BAD})$
 $m(\widehat{DCB}) = m(\widehat{BCF})$
 $m(\widehat{ADC}) = 120^\circ$
 $\alpha = ?$



- A) 40 B) 50 C) 60 D) 70 E) 80

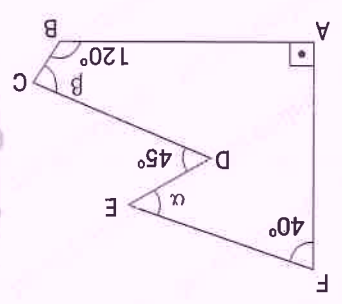
16. $d_1 \parallel d_2$
 $[CD \parallel EF]$
 $m(\widehat{BCD}) = 150^\circ$
 $m(\widehat{EFK}) = \beta = ?$



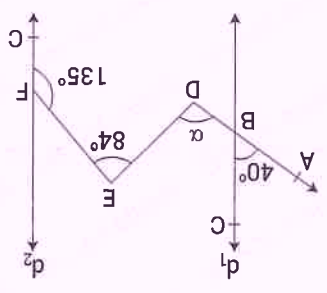
- A) 40 B) 50 C) 60 D) 70 E) 80

18. $[AF \perp AB]$
 $m(\widehat{EDC}) = 45^\circ$
 $m(\widehat{AFE}) = 40^\circ$
 $m(\widehat{ABC}) = 120^\circ$
 $m(\widehat{FED}) = \alpha$
 $m(\widehat{DCB}) = \beta$
 $\alpha + \beta = ?$

- A) 120 B) 130 C) 135 D) 140 E) 155



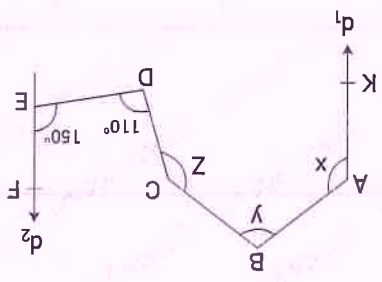
20. $d_1 // d_2$
 $m(\widehat{ABC}) = 40^\circ$
 $m(\widehat{DEF}) = 84^\circ$
 $m(\widehat{EFC}) = 135^\circ$
 $\alpha = ?$



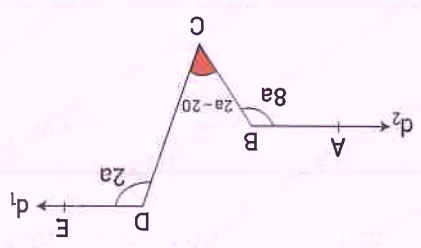
- A) 69 B) 70 C) 72 D) 79 E) 89

17. $d_1 // d_2$
 $m(\widehat{KAB}) = x$
 $m(\widehat{ABC}) = y$
 $m(\widehat{BCD}) = z$
 $m(\widehat{CDE}) = 110^\circ$
 $m(\widehat{DEF}) = 150^\circ$
 $x + y + z = ?$

- A) 110 B) 150 C) 300 D) 400 E) 440



19. $d_1 // d_2$
 $m(\widehat{CDE}) = 2a$
 $m(\widehat{ABC}) = 8a$
 $m(\widehat{BCD}) = 2a - 20$
 $a = ?$



- A) 20 B) 30 C) 40 D) 50 E) 60

4. 16 23 28 38 49 ?
 A) 54 B) 62 C) 68 D) 73 E) 84
1. 5 12 28 62 132 ?
 A) 274 B) 264 C) 174 D) 164 E) 160

2. 87 86 74 62 50 ?
 A) 43 B) 47 C) 54 D) 62 E) 71
5. 114 118 126 138 162 ?
 A) 171 B) 172 C) 173 D) 174 E) 184



3. 64 72 53 52 42 ?
 A) 38 B) 31 C) 23 D) 17 E) 8
6. ? 222 130 68 30 10 2
 A) 347 B) 350 C) 317 D) 268 E) 230

7. 127 108 91 78 67 60 ?

- A) 55 B) 47 C) 33 D) 26 E) 17

10. $\frac{3}{7}, \frac{9}{16}, \frac{12}{23}, \frac{16}{28}, \frac{21}{32}, \frac{27}{44}, \frac{33}{51}, ?$

- A) $\frac{48}{56}$ B) $\frac{63}{61}$ C) $\frac{73}{65}$ D) $\frac{65}{74}$ E) $\frac{72}{83}$

8. $\frac{1}{2}, \frac{4}{5}, \frac{5}{7}, \frac{7}{9}, ?$

- A) $\frac{9}{7}$ B) $\frac{10}{9}$ C) $\frac{11}{7}$ D) $\frac{11}{9}$ E) $\frac{13}{7}$

11. Dizinin hatalı terimini bulunuz ?
Find the incorrect term of sequence ?

146 255 366 489 684 891

- A) 146 B) 255 C) 366 D) 489 E) 684

9. $\frac{47}{13}, \frac{39}{21}, \frac{33}{27}, \frac{28}{32}, \frac{36}{24}, ?$

- A) $\frac{34}{36}$ B) $\frac{24}{56}$ C) $\frac{25}{30}$ D) $\frac{32}{31}$ E) $\frac{29}{31}$

12.

13	23	38	A	62
16	18	B	28	49
38	49	38	A	62

A-B=?

- A) 5 B) 4 C) 3 D) 2 E) 1

13. Hatalı terimin yerine gelecek sayıyı bulunuz ?
509 253,125 73 29 13

A) 34 B) 45 C) 61 D) 98 E) 109

A) 342223233
B) 142221333
C) 442223333
D) 342223132
E) 342213312

14. (5,25)(49,76)(200,75)(625,?)

A) 5 B) 10 C) 15 D) 20 E) 25

A) 52243422121
B) 53241422123
C) 53341422223
D) 53441422223
E) 53342412223

17.

E Z E L L I K
↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑
5 5 3 4 2 2 2 3
E Ö R E C E L L D I R
↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑
? ? ? ? ? ? ? ?

15. (161,182)(59,22)(13,14)(8,?)

A) 43 B) 36 C) 23 D) 7 E) 1

18.

YÖSSİNAVI ← 2
DUMLUPINAR ← 4
34MELİKE ← 1
1965DOĞUMLU ← ?

A) 2 B) 3 C) 4 D) 5 E) 6

16. ABDULLAH → 33212233
YEŞİLVURT → ?

19. H → 10
K → 14
R → 21
U → ?

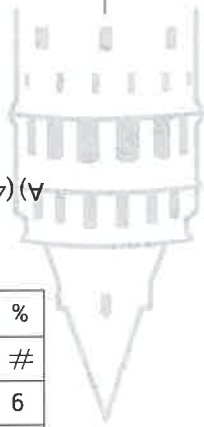
- A) 13 B) 17 C) 22 D) 25 E) 28

22. KLM → ●
KLM → ●
DFG → ●
DFG → ●
RSŞ → ●
RSŞ → ●
abe → ●
abe → ●
BjN → ●
BjN → ●

- A) cko B) cko C) bkm D) bjN E) ckm

20. H → 5
E → 5
O → 0
L → ?

- A) 0 B) 1 C) 5 D) 3 E) 4



23. A) (4, 1)
B) (5, 4)
C) (4, 3)
D) (1, 4)
E) (5, 2)

%	↶	↷	↶	↷
#	⊕	⊖	⊕	⊖
9	8	7	6	5
a	b	c	d	e

- ↶ → (5, 3)
6 → (3, 4)
i → (2, 5)
→ (2, ?)

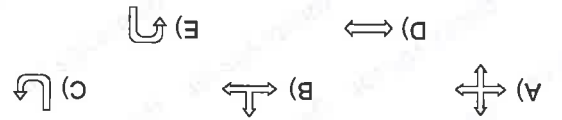
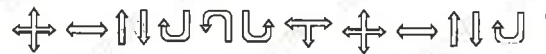
21. GALATA → 6
EĞİTİM → 2
VAZO → 5
MÜNEVVER → ?

- A) 3 B) 4 C) 5 D) 6 E) 7

24. I. AHMET (ÜBETA) KÜBRA
II. SUNAY (?) KAHE

- A) AHAYS
B) AYES
C) AHSYA
D) HVSUY
E) SUNKA

25. Belirlenen ilişkiye göre soldan 62. şekil aşağıdakilerden hangisidir ?
What is the 62 nd figure from the left in accordance with the relationship established ?



26. Hangisi sayıya karşılık gelir ?
→ # % ⇒ p y ? → 5536688891133
☆ ⊕ ◇ = - = ∩ : z →

1	xyz	⊕ : /	3
2	☆	⊕	# ?
3	∩	⊕	z
4	= ☆ ∇	∩	6
5	∩	∩	◇ % □
6	∩	∩	9
7	∩	∩	prs
8	∩	∩	8
9	∩	∩	9

28. LAZOR = 53921
01Z9L3 = ?

- A) 2R9953
B) 5RZ9LA
C) 2RZZ5A
D) 2R9Z53
E) 2R9Z5A

- A) 447733376548822111
B) 47473336548822111
C) 447773336548822111
D) 442223336548822111
E) 48862222336548822111

27. MORITANYA →



ABDULLAH → ?

- A)
- B)
- C)
- D)
- E)

29. PRXY 5612
 DEXY 4512
 FBXY 7812
 BDXX 3421
 EKXY 9312

- A) 5612
 B) 4512
 C) 9312
 D) 3421
 E) 7812

PRXY = ?

1.
$$6 - \frac{6}{x} = 1 \Rightarrow x = ?$$

- A) 3
 B) 4
 C) 5
 D) 6
 E) 7

2.
$$4x - 3 = -2x - 5 \Rightarrow x = ?$$

- A) $-\frac{3}{1}$
 B) $\frac{3}{2}$
 C) 1
 D) 2
 E) $\frac{3}{5}$

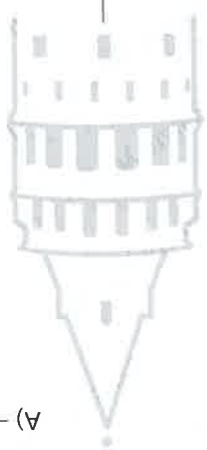
30.
$$\begin{matrix} \diamond & \nabla & \times & \uparrow \\ \times & \nabla & \oplus & \uparrow \\ \diamond & \nabla & \times & \uparrow \\ \times & \nabla & \oplus & \uparrow \\ \diamond & \nabla & \times & \uparrow \\ \times & \nabla & \oplus & \uparrow \end{matrix}$$

$$\left. \begin{matrix} 24856 \\ 41342 \\ 82413 \\ 08938 \\ 38670 \end{matrix} \right\} = ?$$

- A) 24856
 B) 41342
 C) 82413
 D) 07938
 E) 38690

3.
$$1 - \frac{1 - \frac{1}{3}}{5} = 2 \Rightarrow x = ?$$

- A) 2
 B) $\frac{5}{4}$
 C) $\frac{2}{1}$
 D) $\frac{4}{1}$
 E) $\frac{2}{3}$



6.
$$\begin{cases} \frac{1}{2}x + \frac{15}{11}y = \frac{15}{11} \\ \frac{x}{2} - y = -\frac{3}{13} \end{cases} \Rightarrow x + y = ?$$

- A) 3 B) 5 C) 7 D) 8 E) 9

9.
$$\frac{1}{x} + \frac{1}{x+1} + \frac{1}{x-1} = \frac{3}{4} \Rightarrow x = ?$$

- A) $\frac{1}{4}$ B) $\frac{1}{3}$ C) $\frac{1}{2}$ D) $\frac{4}{3}$ E) $\frac{3}{2}$

5.
$$\begin{cases} x - 2y = -1 \\ 3x + y = 4 \end{cases} \Rightarrow (x, y) = ?$$

- A) (1, 0) B) (1, -1) C) (1, 1) D) (1, -2) E) (2, 1)

8.
$$\begin{cases} x + y = 2 \\ y + z = 3 \\ z + x = 5 \end{cases} \Rightarrow x + y + z = ?$$

- A) 5 B) 7 C) 8 D) 10 E) 12

4.
$$\frac{x-5}{x-1} + \frac{y+4}{y+2} = 3 \Rightarrow \frac{x-1}{1} + \frac{2y+8}{1} = ?$$

- A) $-\frac{4}{1}$ B) $-\frac{2}{5}$ C) -2 D) $-\frac{2}{3}$ E) -1

7.
$$\begin{cases} ax + by + 5 = 0 \\ bx - ay - 1 = 0 \end{cases} \Rightarrow (x, y) = (1, 1) \Rightarrow b = ?$$

- A) 3 B) 2 C) 1 D) -2 E) -3



13. a, b, c sıfırdan ve birbirinden farklı pozitif tam sayılardır. $3a+2b+c=40$ denklemi için en büyük c sayısını kaçtır?
a, b, c are positive integers that are different from zero and each other. Accordingly, what is the highest c that provides $3a+2b+c=40$ equation?
A) 30 B) 31 C) 32 D) 33 E) 34

10. $(2x-y-3)a+(x+y)b=0$ if the equality is correct for every a, b what is y?
eşitliği her a, b için doğru ise y kaçtır?
A) -2 B) -1 C) 0 D) 1 E) 2

14. $\frac{2a}{a-2} + \frac{3}{a-2} = \frac{a-2}{4} + \frac{2}{2a-3} \Rightarrow a = ?$

- A) 3 B) $\frac{3}{5}$ C) $\frac{4}{7}$ D) $\frac{4}{17}$ E) $\frac{4}{21}$

olduğuna göre, x kaçtır?
Accordingly, what is x?

11. $x, y, z \in \mathbb{Z}^+$
 $x \cdot y = 12$
 $y \cdot z = 60$
 $x \cdot z = 80$
A) 10 B) 9 C) 8 D) 4 E) 2

12. $\begin{cases} a-b=22 \\ b+c=10 \\ c-d=8 \end{cases} \Rightarrow a-2b-2c+d=?$

- A) 40 B) 32 C) 20 D) 12 E) 4

15. $\frac{0,004 \cdot x + 0,3}{3} = \frac{0,007 \cdot x + 0,05}{4} \Rightarrow x = ?$

- A) 141,7 B) 121,8 C) 210 D) 120 E) 100

16. $\frac{1}{3} - 3a = \frac{1}{4} + 3b \Rightarrow a + b = ?$

- A) $\frac{1}{12}$ B) $\frac{2}{24}$ C) $\frac{1}{36}$ D) $\frac{1}{48}$ E) $\frac{1}{60}$

19. $2x + y = 3$

$mx + ny = 0$

$x - 4y = 6$

denklem sisteminin bir tek çözümü olduğuna göre $\frac{m}{n}$

kaçtır ?

If the system of equations has only one solution,

what is $\frac{m}{n}$?

- A) $\frac{2}{3}$ B) $\frac{1}{2}$ C) $-\frac{2}{1}$ D) -1 E) -3

17. x, y, z reel sayılardır.

$2x + y + 3z = 10$

$3x + 2y + 2z = 12$

$x + 3y + z = 38$

$\Rightarrow x + y + z = ?$

- A) 10 B) 11 C) 12 D) 13 E) 14

20. $1 - \frac{1}{3} : \frac{4}{8} + \frac{3}{11} = ?$

- A) 2 B) $\frac{3}{8}$ C) 3 D) $\frac{3}{10}$ E) 4

18. $(2x + 3y - 7)^6 + (3x - 2y + 9)^4 = 0 \Rightarrow x \cdot y = ?$

- A) -5 B) -3 C) -1 D) 0 E) 3

21. $\frac{\left(4 + \frac{3}{1}\right) - \left(2 - \frac{2}{1}\right)}{\left(5 - \frac{3}{1}\right) - \left(4 + \frac{6}{1}\right)} = ?$

- A) $\frac{2}{13}$ B) 7 C) $\frac{2}{15}$ D) $\frac{3}{22}$ E) 8

$$22. \left(1 - \frac{1}{m}\right) \left(1 - \frac{1}{m+1}\right) \left(1 - \frac{1}{m+2}\right) \cdots \left(1 - \frac{1}{3m-3}\right) = ?$$

- A) $\frac{m}{1}$
 B) $\frac{9m-3}{m}$
 C) $\frac{3m-3}{1}$
 D) $\frac{1}{3}$
 E) $\frac{m+1}{3m-3}$

25. sayılarının sıralanışı hangisidir?
 what is the order of the numbers?

- A) $a < b < c$
 B) $a < c < b$
 C) $c < a < b$
 D) $c < b < a$
 E) $b < a < c$

$$25. a = -\frac{6}{13}, b = -\frac{8}{5}, c = \frac{-7}{12}$$

23. a, b rakamdir
 a, b are numbers

$$a + \frac{b}{25} = 1,2 \Rightarrow a + b = ?$$

- A) 6
 B) 7
 C) 8
 D) 9
 E) 10

24. a, b, c birer rakamdir.
 a, b, c are numbers.

$$\frac{15}{32} = a, bc \Rightarrow a + b + c = ?$$

- A) 6
 B) 7
 C) 8
 D) 9
 E) 10

$$27. \frac{2019 + \frac{2019}{1}}{2018 + \frac{2020}{2019}} = ?$$

- A) $\frac{1}{4}$
 B) $\frac{2}{1}$
 C) 1
 D) 2
 E) 4

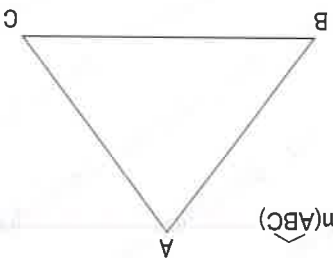
$$26. x = 24,646464\dots, y = 18,353535\dots \Rightarrow x + y = ?$$

- A) 37
 B) 39
 C) 42
 D) 43
 E) 44

28. $\frac{4,12+3,15}{7,27} = ?$

- A) $\frac{1}{2}$ B) $\frac{1}{4}$ C) 1 D) 2 E) 4

1. $2m(\widehat{BAC}) = 3m(\widehat{ACB}) = 6m(\widehat{ABC})$
 $m(\widehat{ACB}) = ?$



- A) 30 B) 50 C) 60 D) 70 E) 80

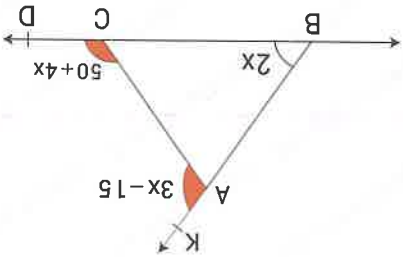
29. x, y, z birer rakamdır.

x, y, z are numbers.

$$x+y+z=11 \Rightarrow y, xz+x, zy+z, yx=?$$

- A) 12,21 B) 11,21 C) 11,11 D) 10,1 E) 10

2. $m(\widehat{KBD}) = 2x$
 $m(\widehat{KAC}) = 3x - 15$
 $m(\widehat{ACD}) = 50 + 4x$
 $x = ?$

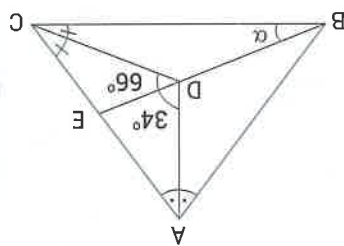


- A) 23 B) 24 C) 26 D) 29 E) 30

30. $\left(\frac{13}{3} - \frac{7}{2} + \frac{7}{5}\right) - \left(\frac{7}{5} - \frac{11}{6} - \frac{13}{23}\right) = ?$

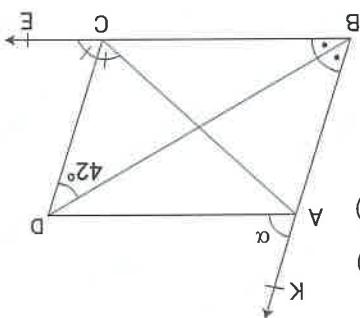
- A) -2 B) -1 C) 1 D) 2 E) 3

4. $m(\widehat{BAD}) = m(\widehat{DAC})$
 $m(\widehat{ACD}) = m(\widehat{DCB})$
 $m(\widehat{ADE}) = 34^\circ$
 $m(\widehat{CDE}) = 66^\circ$
 $\alpha = ?$



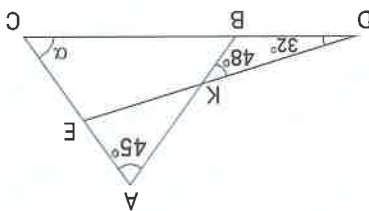
- A) 10 B) 15 C) 20 D) 25 E) 30

6. $m(\widehat{KBD}) = m(\widehat{DBE})$
 $m(\widehat{ACD}) = m(\widehat{DCE})$
 $m(\widehat{BDC}) = 42^\circ$
 $\alpha = ?$



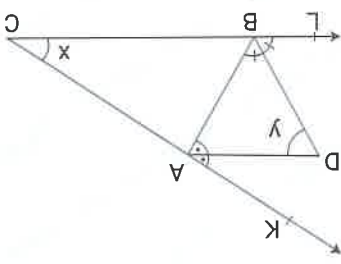
- A) 40 B) 42 C) 44 D) 46 E) 48

3. $m(\widehat{CDE}) = 32^\circ$
 $m(\widehat{DKB}) = 48^\circ$
 $m(\widehat{BAC}) = 45^\circ$
 $\alpha = ?$



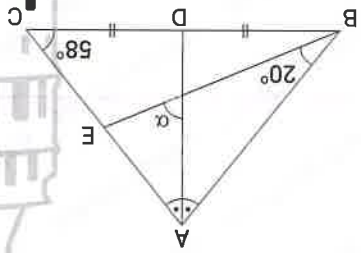
- A) 55 B) 60 C) 65 D) 70 E) 75

5. $m(\widehat{DAK}) = m(\widehat{DAB})$
 $m(\widehat{ABD}) = m(\widehat{DBL})$
 $m(\widehat{ADB}) = y$
 $m(\widehat{KCL}) = x$
 x 'in y cinsinden degeri?
 What is the value of x in terms of y?



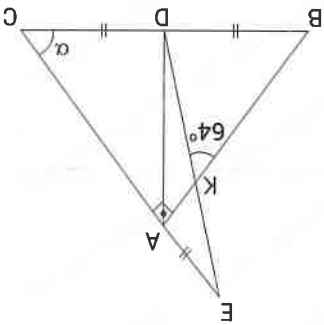
- A) $2y + x = 180$
 B) $2y - x = 180$
 C) $y + 2x = 180$
 D) $y - 2x = 180$
 E) $y + \frac{x}{2} = 45$

8. $m(\widehat{BAD}) = m(\widehat{DAC})$
 $|BD| = |DC|$
 $m(\widehat{ABE}) = 20^\circ$
 $m(\widehat{ACB}) = 58^\circ$
 $\alpha = ?$



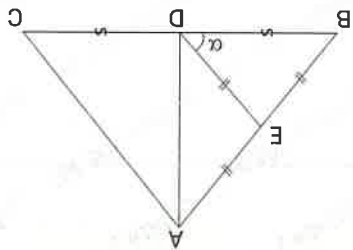
- A) 44 B) 48 C) 50 D) 52 E) 56

10. $[AB] \perp [EC]$
 $|BD| = |DC| = |EA|$
 $m(\widehat{BKD}) = 64^\circ$
 $\alpha = ?$



- A) 35 B) 40 C) 45 D) 50 E) 52

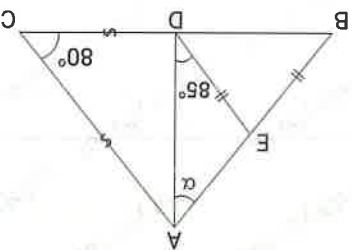
7. $|AE| = |BE| = |ED|$
 $|BD| = |DC|$
 $m(\widehat{ACB}) = 42^\circ$
 $\alpha = ?$



- A) 40 B) 42 C) 44 D) 46 E) 48

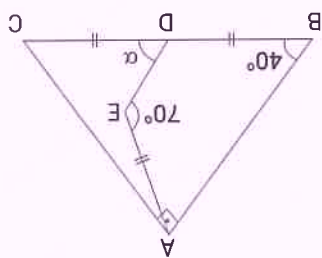
9.

- $|AC| = |DC|$
 $|BE| = |ED|$
 $m(\widehat{ADE}) = 85^\circ$
 $m(\widehat{ACB}) = 80^\circ$
 $\alpha = ?$



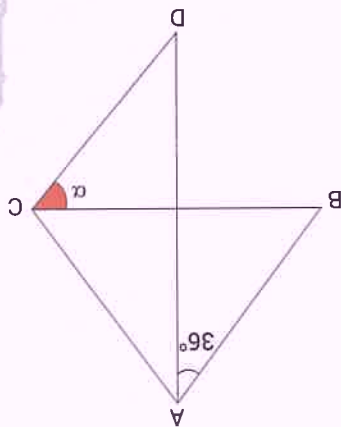
- A) 5 B) 10 C) 20 D) 35 E) 45

11. $[AB] \perp [AC]$
 $m(\widehat{AED}) = 70^\circ$
 $m(\widehat{ABC}) = 40^\circ$
 $\alpha = ?$



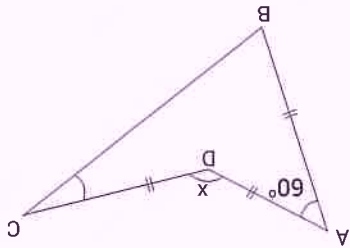
- A) 10 B) 20 C) 30 D) 40 E) 50

12. $|AB| = |AC| = |AD|$
 $m(\widehat{BAD}) = 36^\circ$
 $\alpha = ?$



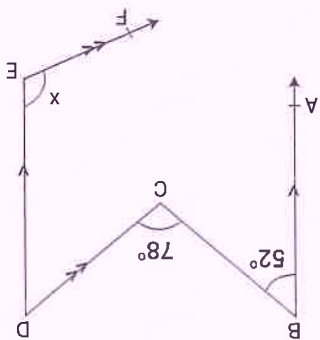
- A) 18 B) 20 C) 24 D) 30 E) 36

13. $|AB| = |AD| = |DC|$
 $m(\widehat{DCB}) = 15^\circ$
 $m(\widehat{BAD}) = 60^\circ$
 $x = ?$



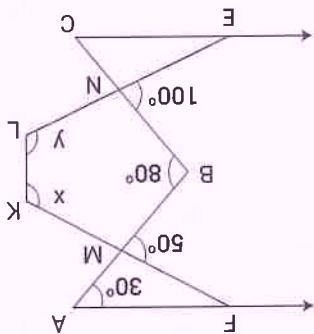
- A) 120 B) 130 C) 140 D) 150 E) 160

14. $[BA \parallel [DE]$
 $[CD \parallel [EF]$
 $m(\widehat{ABC}) = 52^\circ$
 $m(\widehat{BCD}) = 78^\circ$
 $x = ?$



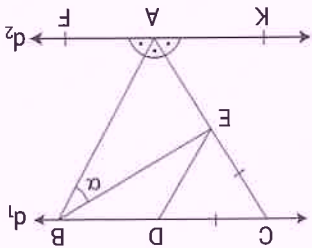
- A) 144 B) 146 C) 150 D) 152 E) 154

15. $[AF \parallel [CE]$
 $m(\widehat{FAB}) = 30^\circ$
 $m(\widehat{FMB}) = 50^\circ$
 $m(\widehat{ABC}) = 80^\circ$
 $m(\widehat{FKL}) = x$
 $m(\widehat{KLE}) = y$
 $m(\widehat{BNE}) = 100^\circ$
 $x + y = ?$



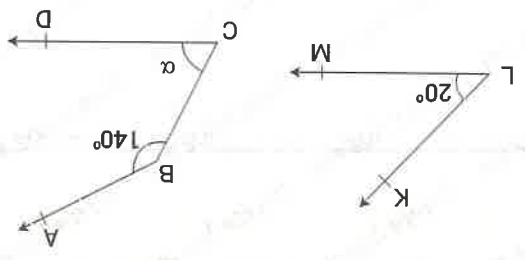
- A) 240 B) 250 C) 260 D) 270 E) 290

16. $d_1 \parallel d_2$
 $m(\widehat{KAC}) = m(\widehat{CAB}) = m(\widehat{BAF})$
 $|CE| = |CD| = |DB|$
 $m(\widehat{EBA}) = \alpha = ?$



- A) 30 B) 45 C) 60 D) 72 E) 80

17.



$[BA \parallel LM]$ $[CD \parallel LM]$

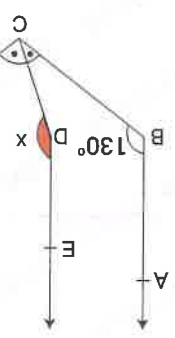
$m(\widehat{KLM}) = 20^\circ$ $m(\widehat{ABC}) = 140^\circ$

$\alpha = ?$

- A) 30 B) 40 C) 50 D) 60 E) 70

18.

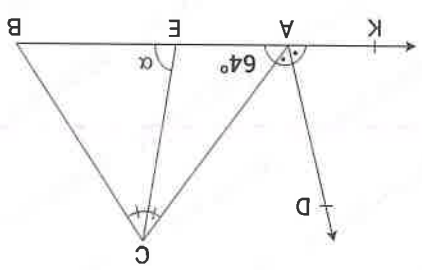
$[AB \parallel DE \parallel FL]$
 $m(\widehat{ABC}) = 130^\circ$
 $m(\widehat{LFC}) = 140^\circ$
 $m(\widehat{BCD}) = m(\widehat{DCF})$
 $x = ?$



- A) 90 B) 95 C) 105 D) 145 E) 175

20.

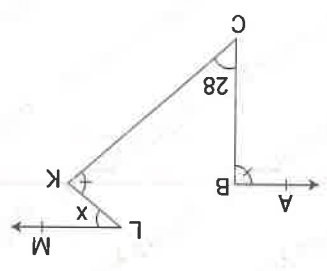
$[AD \parallel BC]$
 $m(\widehat{KAD}) = m(\widehat{DAC})$
 $m(\widehat{ACE}) = m(\widehat{ECB})$
 $m(\widehat{CAB}) = 64^\circ$
 $\alpha = ?$



- A) 58 B) 64 C) 90 D) 93 E) 100

19.

$[BA \parallel LM]$ $m(\widehat{ABC}) = m(\widehat{CKL})$
 $m(\widehat{BCK}) = 28$
 $x = ?$



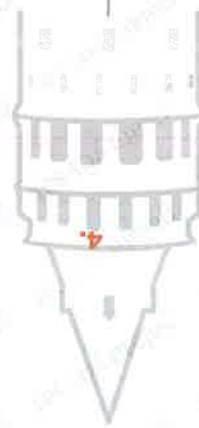
- A) 12 B) 24 C) 28 D) 50 E) 56

A)	32	35	40	46	33
B)	32	34	43	56	17
C)	51	57	62	73	81
D)	1	7	10	10	7
E)	1	7	10	11	12

IV.	?	?	?	?	?
III.	16	21	25	28	30
II.	30	31	34	39	46
I.	15	17	19	21	23

A)	5	27
B)	22	10
C)	22	7
D)	22	8
E)	20	7

I.	15	17	19	21	23	25
II.	34	30	26	?	18	14
III.	13	11	18	?	14	12



A) 200 B) 208 C) 216 D) 222 E) 228

M=98 K+L=?

⋮	24	40	48	64
⋮	24	48	80	58
⋮	15	30	46	35
⋮	6	12	23	23
K	L	M		

3.

A)	0	10
B)	7	23
C)	6	32
D)	1	10
E)	12	43

?	12	35	48	18	?
?	34	75	86	92	?

1.	15	111.
2.	22	...
3.	29	...
4.	36	...
5.	43	...
6.	50	...
7.	57	...

A) 781 B) 782 C) 783 D) 784 E) 785

5.

7. 56 83 65 68 36 ?

A) 56 B) 59 C) 61 D) 65 E) 69

k
$k+x$
$k+2x$
$k+3x$
$k+4x$

L	$L+y$	$L+2y$	$L+3y$	$L+4y$	$L+5y$...
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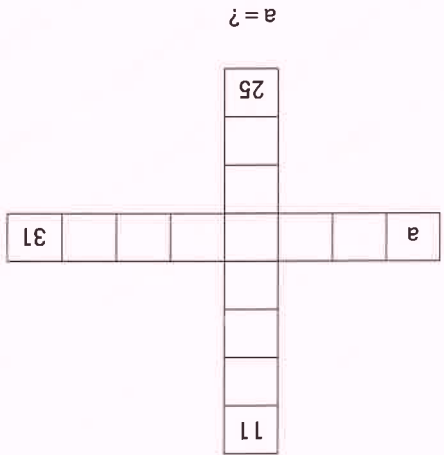
6.

8.

A) 134 B) 135 C) 136 D) 137 E) 138

A = 29 B + C = ?

A	B	C
2	7	3
3	13	7
5	21	11
7	29	15
11	41	19
13	49	23



A) 10 B) 9 C) 8 D) 7 E) 6

9. 17 31 35 30 39 43 43 43 47 ?

A) 55 B) 56 C) 57 D) 58 E) 59

10. $f(4)=12$, $f(3)=6$, $f(2)=2$, $f(1)=0$
 $\Rightarrow f(n)=?$

- A) $n^2 + n$
- B) $2^n - n$
- C) $n^3 + \frac{n}{2}$
- D) $n^2 - n$
- E) $n^3 + 3$

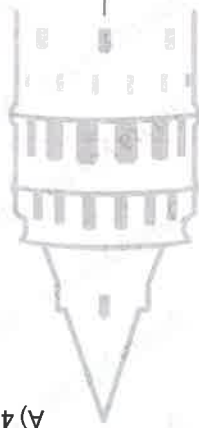
13. A) $\frac{44}{17}$ B) $\frac{35}{25}$ C) $\frac{46}{26}$ D) $\frac{47}{37}$ E) $\frac{48}{38}$
 B) $\frac{45}{22}$ C) $\frac{36}{26}$ D) $\frac{47}{33}$ E) $\frac{48}{38}$

- A) $\frac{34}{17}$ B) $\frac{35}{16}$ C) $\frac{36}{26}$ D) $\frac{47}{33}$ E) $\frac{48}{38}$

11. $a \neq 0$, $b \neq 0$, $\frac{a}{b} - \frac{b}{a} = 0 \Rightarrow k_{1983} - k_{2020} = ?$

k_1	$\frac{a^2}{b^2}$
k_2	$\frac{a^4}{b^4}$
k_3	$\frac{a^6}{b^6}$
...	
k_n	$\frac{a^{2n}}{b^{2n}}$

- A) -2 B) -1 C) 0 D) 1 E) 2



15. Asğıdakilerden hangisi farklıdır ?
 Which number of the following is different?

- A) 77 B) 93 C) 87 D) 98 E) 65

12. 7 14 33 70 131 222 349 ?

- A) 510 B) 514 C) 516 D) 517 E) 518

19. 71, 49, 53, 18, 34, 26, 23 sayıları aşağıdaki eşitliği sağlayacak şekilde yerleştirildiğinde hangi sayı kullanılmaz?
Which number cannot be used when the numbers are inserted in such a way as to achieve the following equation?

$$\square + \square + \square + \square = \square + \square + \square + \square$$

- A) 71 B) 53 C) 49 D) 26 E) 18

20. 1,7 — 2,4 — ? — 2,3 — 1,9 — 2,2

- A) 2,8 B) 1,8 C) 3,2 D) 4,3 E) 5,2



21. 4 2 7 6 1 3 0 8 ← 59
8 5 9 6 4 0 7 1 ← 23
5 3 6 2 8 7 4 0 ← ?

- A) 16 B) 17 C) 18 D) 19 E) 20

16. a, b pozitif tam sayılar

a, b are positive integers

$$a, b = a + (a+1) + (a+2) + \dots + (a+(b-1))$$

$$6, 4 = 6 + (6+1) + (6+2) + (6+3)$$

$$m, 7 = 105 = m = ?$$

- A) 9 B) 10 C) 11 D) 12 E) 13

17. x, y pozitif tam sayılar

x, y are positive integers

$$x, y = (x-1)(x-2)(x-3)\dots(x-y)$$

$$6, 3 = (6-1)(6-2)(6-3) = 5 \cdot 4 \cdot 3 = 60$$

$$12, k = 990 = k = ?$$

- A) 3 B) 4 C) 5 D) 6 E) 7

18. 3 81 5 125 7 49 x y

(x, y) aşağıdakilerden hangisidir?

Which of the following is (x, y)?

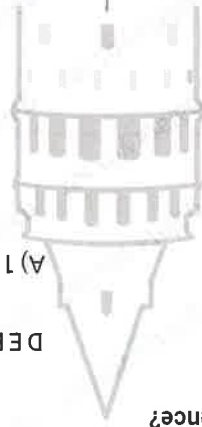
- A) (9, 9) B) (10, 11) C) (9, 81) D) (10, 100) E) (11, 12)

22. İSTİKRAR
↑↑↑↑↑↑↑↑
21223333
BASARMAKTIR
↑↑↑↑↑↑↑↑
? ? ? ? ? ? ? ?

A) 33132332213
B) 33233433223
C) 3322422331
D) 33233433213
E) 32233433213

23. 9876543987654398 ...
Sayı dizisinde 2019. sayı hangisidir ?
Which is the 2019th number in the number sequence?

A) 9 B) 8 C) 7 D) 6 E) 5



26. PINARBAŞI = 4

BORAKS = 3

DOBRA = 4

EKİM = 0

DEPRESYON = ?

A) 1

B) 2

C) 3

D) 4

E) 5

24. İSTANBUL = 12345678
BULMACA = ?

A) 7681654

B) 8763454

D) 6780494

E) 8670414

27.

SERHAN = 001011

FURKAN = 011010

MERYEM = 011010

SERVER = 011010

ZEHRA = ?

OKTAY = ?

A) 11111

B) 00000

D) 11100

E) 00011

28.

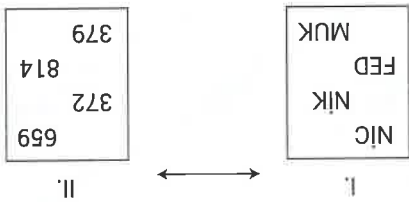
- AFGANİSTAN ♠ = İSTANAFGAN
- ♠ SURİYE = EYİRUS
- ♥ TÜRKMENİSTAN ♠ = NİSTANTÜRKMİE = EMKRÜTNATSİN
- ♠ YUNANİSTAN ♠ = ?
- A) YUNANİSTAN
- B) İSTANYUNAN
- C) NATSİNANUY
- D) NANUYNATSI
- E) UYANİNTSNA

29.

- 4782 * ☆ □ ☆ *
 - 8534 ● ◎ * @
 - 5643 ☆ ● ◇ ◎
 - 3268 ◎ ☆ @ *
 - 6875 @ ◇ ●
- ⇒ * ◎ ◇ □ = ?
- A) 8475
 - B) 3527
 - C) 4576
 - D) 3567
 - E) 2867

Matematik Maths

30.



- A) 352
- B) 739
- C) 756
- D) 329
- E) 318

- A) $\frac{1}{2^3}$
- B) $\frac{1}{2^3}$
- C) $\frac{1}{2^6}$
- D) -2^3
- E) 2^3

$$\begin{bmatrix} 1 \\ -2 \\ 1 \end{bmatrix}^{-3} = ?$$

2. $2^7 - 2^6 = ?$

- A) 2 B) 2^4 C) 2^5 D) 2^6 E) $2 \cdot 2^6$

5. $5^x = 7^y \Rightarrow 49^{\frac{x}{y}} - 25^{\frac{y}{x}} = ?$

- A) 24 B) 6 C) 0 D) -24 E) -48

3. $a = \overbrace{16+16+\dots+16}^{8 \text{ tane}}$

$b = \overbrace{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}^{7 \text{ tane}}$

olduğuna göre $a+b$ toplamı kaçtır ?
accordingly, what is $a+b$?

- A) 2^6 B) 2^7 C) 2^8 D) 2^9 E) 2^{10}

6.

$\frac{2^{x+1} + 2^{x+1}}{8} = \frac{10^{x-1}}{5} \Rightarrow x^x = ?$

- A) 4 B) 8 C) 27 D) 16 E) $\frac{4}{1}$

4. $(a^3 b^2)^4 = ?$

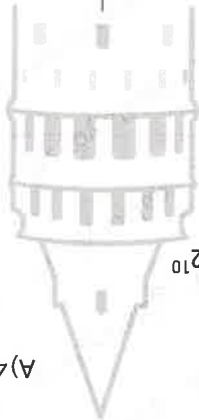
- A) $a^3 b^8$ B) $a^{12} b^2$ C) $a^{12} b^8$ D) $a^7 b^6$ E) $a^7 b^8$

$\Rightarrow \frac{z}{x \cdot y} = ?$

$3^{x+y-5} = 5^{x-3} = 2^{2y-z+2}$

$x, y, z \in Z$

- A) 1 B) 2 C) 3 D) 4 E) 5



8. $(0,125)^{x-3} = 8^{3x-1} = x = ?$

- A) -3 B) -2 C) -1 D) 0 E) 1

11. $x^{-y} = 2$
 $\Rightarrow (x^{2y-1})^{-1}$ in x türünden değeri nedir ?
 \Rightarrow what $(x^{2y-1})^{-1}$ in terms of x?

- A) x B) 2x C) 3x D) 4x E) 5x

9. $3^x = 5$, $9^y = 125$ $\Rightarrow \frac{x-y}{x+y} = ?$

- A) -5 B) -3 C) 5 D) $\frac{5}{1}$ E) $-\frac{5}{1}$

12. $t^2 = t+1$
 $\Rightarrow t^5$ sayısının değeri aşağıdakilerden hangisidir ?
 \Rightarrow which of the following is t^5 value?

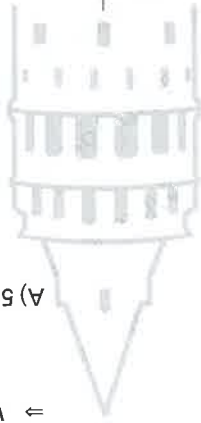
- A) $5t+3$ B) $3t-2$ C) $3t-3$ D) $3t+3$ E) $3t$

10. $\frac{2^{104} - 5 \cdot 2^{100} + 2^{98}}{2^{100} + 2^{98}} = ?$

- A) $\frac{5}{2}$ B) $\frac{3}{2}$ C) 5 D) 6 E) 12

13. $\frac{0,005 \cdot 10^{35} + 0,8 \cdot 10^{33}}{10^{32}} = ?$

- A) $4 \cdot 10^{33}$ B) $4 \cdot 10^{32}$ C) 13 D) 8 E) 5



$$14. \left(\frac{3}{1}\right)^{-2x} \cdot 9^{x+1} \cdot 27^{-x} = 81 \Rightarrow x = ?$$

- A) -1 B) 0 C) 1 D) 2 E) 3

$$17. a, b, c \in \mathbb{Z}$$

$$2^a + 2^b + 2^c = \frac{64}{1} \Rightarrow a+b+c = ?$$

- A) -15 B) -14 C) -23 D) -12 E) 13

$$18. \frac{x}{x+3} = 2001 \Rightarrow \frac{x}{x-3} = ?$$

- A) -2001 B) -1999 C) -1997 E) 2003 D) 2001

15. x, y, z asal sayılardır.
 $x^{y-z} = 5 \Rightarrow y^{x-z} = ?$
 x, y, z are prime numbers

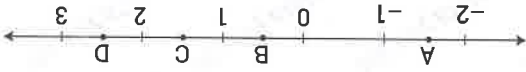
- A) 27 B) 81 C) 125 D) 128 E) 243

$$16. x = 61 \cdot (2^6 + 3) = (x+9)^4 = ?$$

- A) 2^{36} B) 2^{48} C) 2^{60} D) 2^{72} E) 2^{90}

19. Aşağıdaki sayı doğrusunda A, B, C ve D gerçel sayılar gösterilmiştir.

The real numbers A, B, C, and D are shown in the following line



Buna göre/ Accordingly

I. $A > B$

II. $B > C$

III. $C > D$

İfadelerinden hangileri doğrudur?

Which of the statements is true?

- A) III. B) II. C) I, II. D) II, III. E) I, III.

20. $a = \frac{1}{4}$, $b = 12$, $c = -8$ olmak üzere

$a \cdot b - (c \cdot a - b \cdot c) = ?$

- A) -91 B) -90 C) -88 D) 91 E) 0

23. $3(x-1) + \frac{2}{9x+4} = 3x-7$

denkleminin çözüm kümesi nedir ?

what is the solution set of equation?

- A) R B) $\{-3\}$ C) $\{6\}$ D) $\{2\}$ E) \emptyset

21. $\frac{8}{10} + \frac{0,4}{3} + \frac{0,5}{0,3} = ?$

- A) 37 B) 39 C) 40 D) 42 E) 45

denkleminin çözüm kümesi boş küme olduğuna

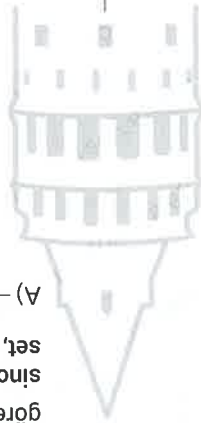
göre, a kaçtır ?

since the solution set of the equation is an empty

set, what is a ?

- A) -3 B) -2 C) -1 D) 2 E) 3

24. $(5a-3)x-3=(a+9)x-7$



25. $2a-b+c=11$
 $a+b-c=-5$
 $\Rightarrow a=?$

- A) 2 B) 3 C) 4 D) 5 E) 6

22. $3 + \frac{3 + \frac{3 + \frac{3}{4}}{4}}{4} : 4 = ?$

- A) $\frac{4}{13}$ B) 3 C) $\frac{4}{11}$ D) $\frac{3}{8}$ E) 1

$$26. \quad 3x - 2 + \frac{x+2}{x+3} + \frac{x-3}{x-4} - \frac{x-4}{11x} + \frac{x+5}{8-x} = 0$$

denkleminin çözüm kümesi kaçtır ?

what is the solution set of the equation ?

- A) -5 B) -2 C) 3 D) 4 E) 6

A) $\frac{a-2}{a+3}$

B) $\frac{a-2}{a+3}$

D) $\frac{a}{a+3}$

E) $\frac{a-3}{a+3}$

C) $\frac{a-3}{a-3}$

$$29. \quad a^2x - 6a = a^2 + 9x + 9 \Rightarrow x = ? \quad a \neq 3 \quad a \neq -3$$

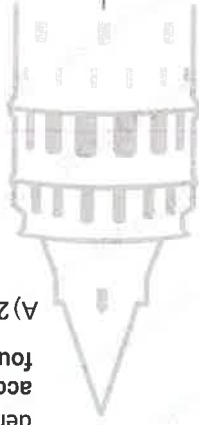
27.

$$\begin{cases} a \cdot x + 2 \cdot y = 7 \\ (a+2) \cdot x + (b-1) \cdot y = 14 \end{cases}$$

denklemler sisteminin sonsuz çözümlü varsa $a \cdot b = ?$

what is $a \cdot b$ if the equation system has an infinite solution ?

- A) 18 B) 15 C) 12 D) 10 E) 8



denkleminde göre x in hangi değeri için y bulunamaz ?
according to the equation, what value of x can't be found for y ?

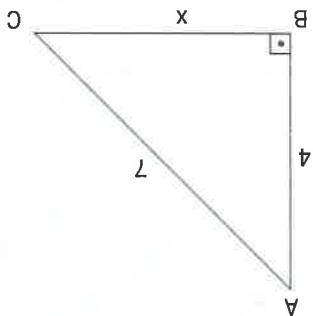
$$30. \quad x = \frac{4y+1}{y-3}$$

- A) 2 B) 3 C) 4 D) 5 E) 6

$$28. \quad \frac{1}{1} - \frac{a}{1} - \left(\frac{b}{1} - \frac{c}{1} \right) - \left(\frac{a}{1} - \frac{b}{1} \right) + \frac{c}{1} = ?$$

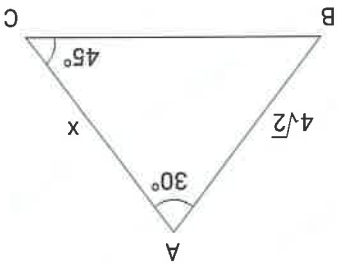
- A) $\frac{a}{1}$ B) $\frac{c}{2}$ C) $\frac{a}{2}$ D) $\frac{1}{1}$ E) $-\frac{1}{b}$

1. $[AB] \perp [BC]$
 $|AB| = 4$
 $|AC| = 7$
 $x = ?$



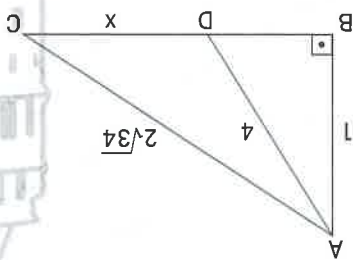
- A) $\sqrt{30}$ B) $\sqrt{31}$ C) $\sqrt{33}$ D) $\sqrt{34}$ E) $\sqrt{35}$

3. $m(\widehat{BAC}) = 30^\circ$
 $m(\widehat{ACB}) = 45^\circ$
 $|AB| = 4\sqrt{2}$
 $x = ?$



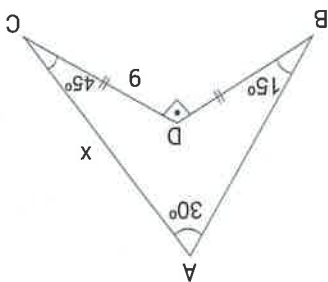
- A) $2\sqrt{6} - 2\sqrt{2}$ B) $\sqrt{6} + 2\sqrt{2}$ C) $2\sqrt{6} - \sqrt{2}$ D) $2\sqrt{6} + 2\sqrt{2}$ E) $\sqrt{6} - \sqrt{2}$

2. $[AB] \perp [BC]$
 $|AB| = 1$
 $|AD| = 4$
 $|AC| = 2\sqrt{34}$
 $x = ?$



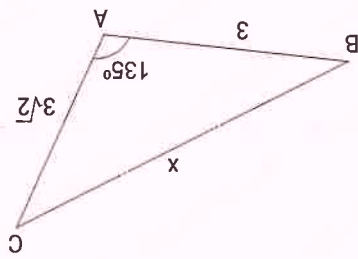
- A) $\sqrt{15}$ B) $2\sqrt{15}$ C) $3\sqrt{15}$ D) $\sqrt{34}$ E) $\sqrt{17}$

4. $[BD] \perp [CD]$
 $m(\widehat{ABD}) = 15^\circ$
 $m(\widehat{DCA}) = 45^\circ$
 $m(\widehat{BAC}) = 30^\circ$
 $|CD| = |BD| = 9$
 $x = ?$



- A) 9 B) $9\sqrt{3}$ C) $9\sqrt{6}$ D) 10 E) $10\sqrt{3}$

6. $m(\widehat{BAC}) = 135^\circ$
 $|BA| = 3$
 $|AC| = 3\sqrt{2}$
 $x = ?$

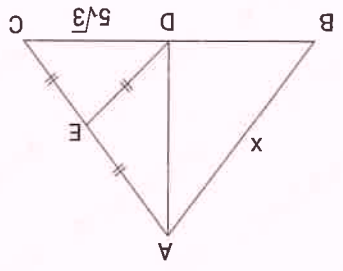


- A) 2 B) $\sqrt{5}$ C) $2\sqrt{5}$ D) $3\sqrt{5}$ E) $4\sqrt{5}$

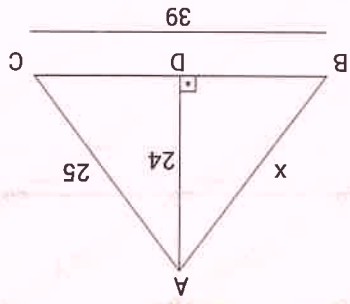
8. $|AE| = |EC| = |DE| = 5$
 $|DC| = 5\sqrt{3}$
 $|BC| = 7\sqrt{3}$
 $|AB| = x = ?$



- A) $\sqrt{30}$ B) $\sqrt{31}$ C) $\sqrt{33}$ D) $\sqrt{34}$ E) $\sqrt{37}$

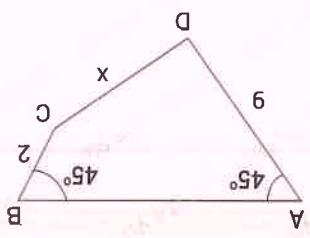


5. $[AD] \perp [BC]$
 $|AD| = 24$
 $|AC| = 25$
 $|BC| = 39$
 $x = ?$



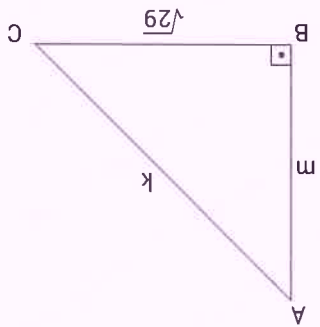
- A) 28 B) 30 C) 34 D) 36 E) 40

7. $m(\widehat{ABC}) = m(\widehat{DAB}) = 45^\circ$
 $|BC| = 2$
 $|AD| = 9$
 $|AB| = 17\sqrt{2}$
 $|CD| = x = ?$



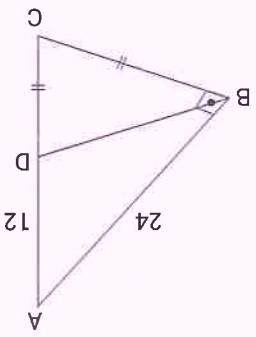
- A) 9 B) 13 C) 15 D) 17 E) 18

9. $[AB] \perp [BC]$
 $|AB| = m$
 $|AC| = k$
 $|BC| = \sqrt{29}$
 $m^2 + k^2 = 83$
 $m = ?$



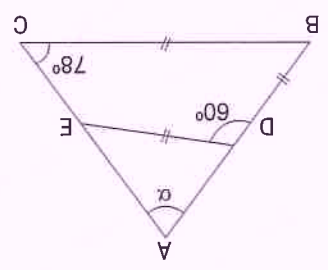
- A) $3\sqrt{3}$ B) $4\sqrt{3}$ C) $5\sqrt{3}$ D) $6\sqrt{3}$ E) $7\sqrt{3}$

10. $[AB] \perp [BC]$
 $|AD| = 12$
 $|AB| = 24$
 $|BC| = |CD|$
 $\hat{C}(ABC) = ?$



- A) 60 B) 64 C) 66 D) 70 E) 72

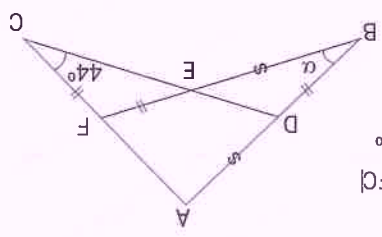
11. $|BD| = |DE| = |BC|$
 $m(\widehat{BDE}) = 60^\circ$
 $m(\widehat{BCA}) = 78^\circ$
 $\alpha = ?$



- A) 8 B) 10 C) 18 D) 20 E) 22

12.

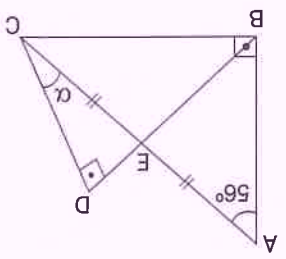
$|AD| = |BE|$
 $|BD| = |EF| = |FC|$
 $m(\widehat{ACD}) = 44^\circ$
 $\alpha = ?$



- A) 4 B) 6 C) 10 D) 14 E) 20

13.

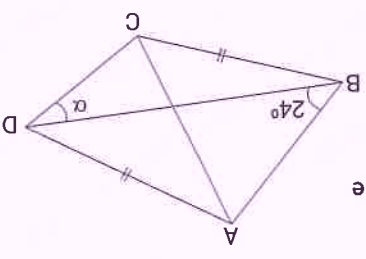
$[AB] \perp [BC]$
 $[BD] \perp [DC]$
 $|AE| = |EC|$
 $m(\widehat{BAC}) = 56^\circ$
 $\alpha = ?$



- A) 20 B) 22 C) 24 D) 26 E) 28

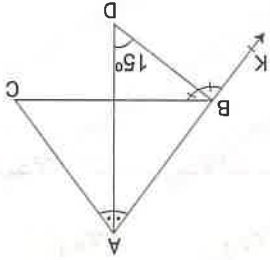
14.

ABC eşkenar üçgen
 $|AD| = |BC|$
 $m(\widehat{ABD}) = 24^\circ$
 $\alpha = ?$



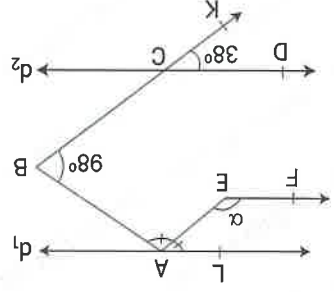
- A) 30 B) 34 C) 35 D) 36 E) 41

15. $m(\widehat{KAD}) = m(\widehat{DAC})$
 $m(\widehat{CBD}) = m(\widehat{DBK})$
 $m(\widehat{ADB}) = 15^\circ$
 $m(\widehat{CAB}) = 46^\circ$
 $m(\widehat{KBD}) = ?$



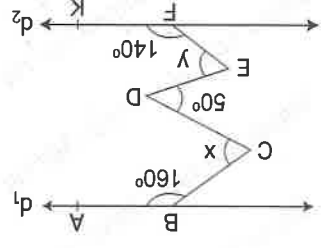
- A) 23 B) 24 C) 33 D) 38 E) 46

16. $d_1 // d_2 // EF$
 $m(\widehat{KCD}) = 38^\circ$
 $m(\widehat{ABC}) = 98^\circ$
 $m(\widehat{BAE}) = m(\widehat{EAL})$
 $\alpha = ?$



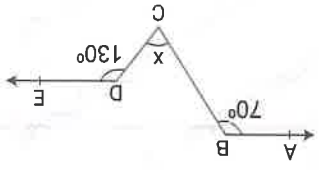
- A) 90 B) 100 C) 110 D) 120 E) 130

17. $d_1 // d_2$
 $m(\widehat{ABC}) = 160^\circ$
 $m(\widehat{EFK}) = 140^\circ$
 $m(\widehat{CDE}) = 50^\circ$
 $x + y = ?$



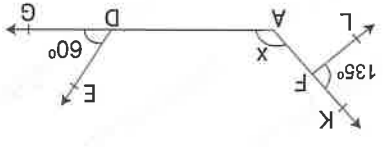
- A) 100 B) 110 C) 120 D) 160 E) 140

18. $BA // DC$
 $m(\widehat{ABC}) = 70^\circ$
 $m(\widehat{CDE}) = 130^\circ$
 $x = ?$



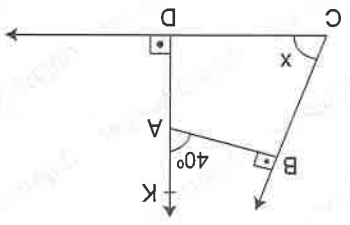
- A) 20 B) 30 C) 40 D) 50 E) 60

19. $FL // DE$
 $m(\widehat{LFK}) = 135^\circ$
 $m(\widehat{EDG}) = 60^\circ$
 $x = ?$



- A) 100 B) 105 C) 110 D) 115 E) 120

20. $m(\widehat{ABC}) = 90^\circ = m(\widehat{CDA})$
 $m(\widehat{BAK}) = 40^\circ$
 $x = ?$



- A) 40 B) 100 C) 120 D) 130 E) 140

1. $a \bullet b = a^2 + 2b + 3$

$a \blacktriangledown b = a \cdot b - 1$

$(3 \bullet 4) \blacktriangledown 5 = ?$

- A) 103 B) 99 C) 88 D) 75 E) 60

4. $a \neq b = \sqrt[4]{b+1}$

$a \times b = b^a$

$(3 \# 26) \times (2 \# 24) = ?$

- A) 81 B) 100 C) 121 D) 125 E) 144

2. $3a \star \frac{4}{b} = 3a + \frac{2}{3b}$

$12 \star 12 = ?$

- A) 38 B) 39 C) 40 D) 41 E) 42

5. $x \dagger y = \frac{1 + \frac{x}{y}}{\frac{1}{x} + 1}$

$\frac{1}{2} \dagger \frac{4}{1} = ?$

- A) 1 B) 6 C) $\frac{6}{1}$ D) $\frac{5}{2}$ E) $\frac{2}{3}$

3. $3a + 2 \blacksquare (2b - 3) = \frac{3a + 2b}{3}$

$14 \blacksquare 27 = ?$

- A) 16 B) 15 C) 14 D) 13 E) 12

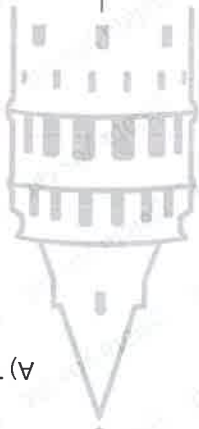
6. $8 \star 16 = 12$

$14 \star 22 = 18$

$23 \star 39 = 31$

$33 \star 65 = ?$

- A) 49 B) 47 C) 45 D) 43 E) 41

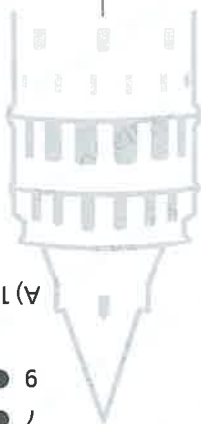


9. 5 ∇ 3 = 19
 6 ∇ 4 = 28
 7 ∇ 5 = 39
 8 ∇ 6 = ?

- A) 46 B) 49 C) 52 D) 58 E) 63

12. 26 \circ 23 = 7
 56 \circ 44 = 10
 88 \circ 56 = 12
 117 \circ 172 = ?

- A) 14 B) 15 C) 16 D) 17 E) 18



8. 5 * 6 = 8
 7 * 9 = 11
 8 * 12 = 12
 9 * 15 = ?

- A) 13 B) 14 C) 15 D) 16 E) 17

11. 3 \bullet 4 = 12
 5 \bullet 8 = 40
 7 \bullet 12 = 84
 9 \bullet 16 = ?

- A) 141 B) 142 C) 143 D) 144 E) 145

7. 24 \blacksquare 15 = 17
 38 \blacksquare 33 = 30
 42 \blacksquare 21 = 28
 26 \blacksquare 42 = ?

- A) 18 B) 22 C) 27 D) 33 E) 36

10. 3 \blacktriangledown 2 = 25
 5 \blacktriangledown 4 = 81
 6 \blacktriangledown 5 = 121
 7 \blacktriangledown 6 = ?

- A) 49 B) 64 C) 100 D) 144 E) 169

- 15. ☹️ 72 = 25
- ☹️ 84 = 20
- ☹️ 64 = 10
- ☹️ 94 = ?

- A) 15
- B) 20
- C) 25
- D) 30
- E) 35

- 18. 7, 18, 29, 34, 45, 56, 61, ?
- A) 71
- B) 73
- C) 74
- D) 81
- E) 83

- 14. ♠️ 27 = 18
- ♠️ 37 = 20
- ♠️ 57 = 24
- ♠️ 86 = ?

- A) 33
- B) 31
- C) 29
- D) 28
- E) 25

- 17. MIKAIL = 111111
- IAL = 010101
- KAI = 001110
- MIL = ?

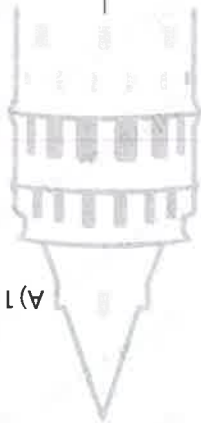
- A) 100011
- B) 111000
- C) 110011
- D) 000000
- E) 011001

- 13. ☹️ 25 36 = 19
- ☹️ 64 73 = 81
- ☹️ 144 82 = 94
- ☹️ 196 = ? 98

- A) 80
- B) 81
- C) 82
- D) 83
- E) 84

- 16. GLVA = 010111
- AEY = 101010
- GEA = 011001
- AGELYA = ?

- A) 00011
- B) 001110
- C) 000000
- D) 111111
- E) 0101111

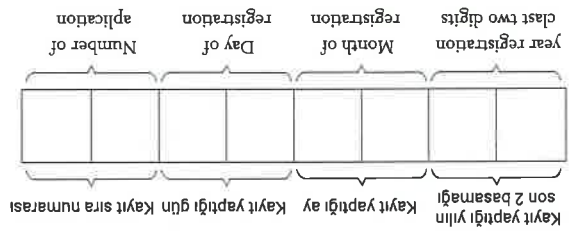


19. 20. 21. soruları aşağıdaki bilgilerle göre cevaplayınız?

Answer question number 19, 20 and 21 by the following information ?

GALATA Eğitim kayıtlarını öğrencinin öğrenci numarası aşağıdaki formülle hesaplanır:

The student number of students who have applied to GALATA Eğitim is made by the formula given below.



Student number should be 8 digit

1 9 1 0 1 1 1 7

The student number of a student who applied on 11 th October 2019 is attached below

11 Ekim 2019 tarihinde kayıt yaptırılan bir öğrencinin öğrenci numarası aşağıdaki gibidir:

Örnek

Sample

19.

Öğrenci no

1 9 1 1 1 3 1 7

olan bir öğrenci hangi tarihte kayıt yaptırmıştır.

On what date did the student with the student number as above registered?

A) 17/11/2019

B) 13/11/2019

C) 19/11/2017

D) 13/11/2017

E) 11/11/2019

23 Ağustos 2019'da kayıt yaptırılan 10 sıradaki öğrencinin öğrenci numarası kaçtır.
What is the student number of the student in the 10 throw who applied on 23 rd August, 2019

A) 1 9 1 0 1 0 2 3 8

B) 2 3 0 8 1 0 1 9

C) 1 9 0 8 2 3 1 0

D) 1 0 0 8 2 3 1 9

E) 1 9 0 8 1 0 2 3

21.

1	9	0	7	3	1	0	6
---	---	---	---	---	---	---	---

Bu tarihte kayıt yaptırın öğrenci kaydını bir gün sonra 2. sırada yaptırma idi öğrenci numarası ne olurdu?
 What would be the student number of a student who has applied in the given date be, if the student had applied one day after in the second row ?

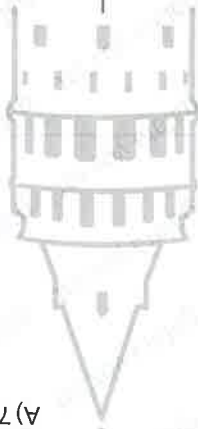
- A) 19083102
 B) 19073102
 C) 19080106
 D) 19073002
 E) 19080102

23. 10, 12, 15, 20, 27, ?

- A) 34 B) 35 C) 38 D) 42 E) 44

24. 1, 2, 3, 5, 11, 35, ?

- A) 70 B) 95 C) 120 D) 135 E) 155



25. 4, 4, 4, 6, 18, 22, 110, ?

- A) 115 B) 116 C) 120 D) 180 E) 220

22. 14, 15, 24, 30, ?, 63

- A) 18 B) 25 C) 36 D) 40 E) 54

26. 8, 8, 16, 19, 15, 3, 18, 25, ?

- A) 9 B) 11 C) 12 D) 17 E) 24

29.

5	2	15	4	25	x
25	10	75	20	125	y

$$x + y = ?$$

- A) 200 B) 150 C) 120 D) 54 E) 36

30.

1	2	7	3	20	3	61	?
---	---	---	---	----	---	----	---

- A) 3 B) 4 C) 5 D) 54 E) 81

27. $3,75 - 5 - 6,50 - 8,25 - 10,25 - ?$

- A) 11,75 B) 12 C) 12,25 D) 12,50 E) 12,75

28. 20, 1, 16, 20, 81, ?, 20

- A) 87 B) 169 C) 196 D) 256 E) 264

31. $\sqrt{3x-2} - \sqrt{15-3x}$

İfadesini gerçek (real) sayı yapan kaç doğal sayı vardır ?
How many natural numbers are for making the above
statement a real number?

- A) 3 B) 4 C) 5 D) 6 E) 7

2. $\frac{3x + \sqrt{5x-1}}{2 + \sqrt{1-5x}} = ?$

- A) $\frac{2}{3}$ B) $\frac{10}{3}$ C) 2 D) 5 E) 6

5. $\sqrt{\frac{5}{2}} \cdot \sqrt{\frac{8}{5}} = ?$

- A) 2 B) $4\sqrt{2}$ C) $2\sqrt{5}$ D) 4 E) $\sqrt{10}$

3. $\sqrt{13 - \sqrt{19 - \sqrt{5 + \sqrt{16}}}} = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

6. $2^{\frac{1}{2}} + 3^{\frac{1}{2}} - 5^{\frac{1}{2}} = ?$

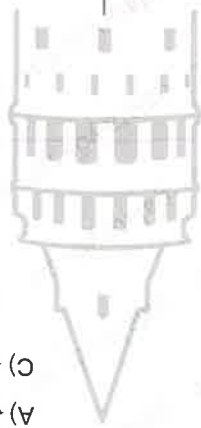
- A) $\sqrt{2} - \sqrt{3} + \sqrt{5}$ B) $\sqrt{2} + \sqrt{3} + \sqrt{5}$
 C) $\sqrt{2} + \sqrt{3} - \sqrt{5}$ D) $\sqrt{2} + \sqrt{3} - \sqrt{5}$
 E) $\sqrt{2} + \sqrt{3} + \sqrt{5}$

4. $\sqrt{75} + \sqrt{27} - \sqrt{48} - \sqrt{12} = ?$

- A) $-\sqrt{3}$ B) 0 C) 2 D) $2\sqrt{3}$ E) $4\sqrt{3}$

7. $\sqrt{0,64} + \sqrt{0,09} - 2\sqrt{2,25} = ?$

- A) -2,4 B) -2,2 C) -1,9 D) -1,1 E) -0,9



8. $x, y \in \mathbb{R}$ olmak üzere,
 $\sqrt{x+y+4} + \sqrt{2x-y-19} = 0$
 $\Rightarrow 3x+y = ?$
 A) 5 B) 6 C) 7 D) 8 E) 9

10. $\frac{\sqrt{3}-1}{2} - \frac{\sqrt{3}}{3} = ?$
 A) $2\sqrt{3}$ B) $\sqrt{3}$ C) $\sqrt{2}$ D) 1 E) -1

9. $\sqrt{2} = a$, $\sqrt{3} = b$, $\sqrt{5} = c$
 $\Rightarrow \sqrt{150} = ?$
 A) $a \cdot b \cdot c$
 B) $a^2 \cdot b \cdot c$
 C) $a \cdot b \cdot c^2$
 D) $a \cdot b^2 \cdot c$
 E) $a \cdot b^2 \cdot c^2$

11. $\frac{\sqrt{27} - \sqrt{12}}{\sqrt{3}} = ?$

- A) $-2\sqrt{3}$ B) 0 C) 1 D) $\sqrt{3}$ E) $2\sqrt{3}$

12. $\sqrt{3+2\sqrt{2}} - \sqrt{3-2\sqrt{2}} = ?$

- A) -2 B) 0 C) 1 D) 2 E) $2\sqrt{3}$

13. $\frac{\sqrt{2x+2x+2x+2x}}{4\sqrt{2}} = \frac{9}{\sqrt{3x+3x+3x}}$

- A) 0 B) 1 C) 2 D) 3 E) 4

$\Leftrightarrow x = ?$

20. a, b, c birbirinden farklı rakamlar ve $a(4b+c) = 17$
 a, b, c are different digits and $a(4b+c) = 17$
 $\Rightarrow \min(a) = ?$
 A) 8 B) 5 C) 3 D) 2 E) 1

23. $\frac{29}{18} = a\bar{b}c$
 $\Rightarrow a+b+c = ?$
 A) 6 B) 7 C) 8 D) 9 E) 10

21. $2 - \frac{1 + \frac{1}{2}}{1 + \frac{1}{2}} = ?$
 $1 - \frac{1}{1 - \frac{1}{2}}$

- A) $\frac{5}{21}$ B) $\frac{5}{18}$ C) $\frac{4}{17}$ D) $\frac{4}{15}$ E) 3

- A) 11 B) 12 C) 13 D) 15 E) 16

24. $x, y, \in \mathbb{N}$
 $x^2 - y^2 = 5 \Rightarrow x^2 + y^2 = ?$

22. $\begin{cases} \frac{1}{2} + \frac{x+y}{2} = \frac{3}{2} \\ \frac{x-y}{2} + \frac{x+y}{2} = \frac{5}{3} \end{cases} \Rightarrow x = ?$
 A) $-\frac{5}{2}$ B) -2 C) $-\frac{3}{2}$ D) -1 E) $\frac{2}{7}$

25. $3 \cdot (x^2)^7 - 2 \cdot (x^7)^2 - x^{13} = ?$
 A) x^{14} B) x^{13} C) $x^{14} - x^{13}$ D) x E) $3x^{14} - x^{13}$



26. $(-1)^{151} - (-1)^{27} - (-1)^{11} - (-1)^{28} = ?$

- A) -4 B) -2 C) 0 D) 2 E) 4

29. $a = 2^{30}$, $b = 3^{15}$, $c = 5^{10}$

olduğuna göre a, b, c sıralanışı aşağıdakilerden hangisidir?

accordingly, which of the following is the order at a,b,c?

- A) $c > a > b$ B) $c > b > a$ C) $b > a > c$
 D) $a > c > b$ E) $a > b > c$

27. $3^{x-1} = \frac{9}{5x+1} - \frac{3 \cdot 5^x}{5x+1} = ?$

- A) $\frac{6}{a}$ B) $\frac{2}{a-3}$ C) $\frac{a+3}{6}$

D) $\frac{3}{a-1}$ E) $\frac{6}{a-3}$

30. $\left(\frac{2}{1}\right)^{y^2+5y} > \frac{64}{1}$

eşitliğini sağlayan y tam sayı değerlerinin toplamı

kaçtır?

what is the sum of the y integer values that ensure the above equality?

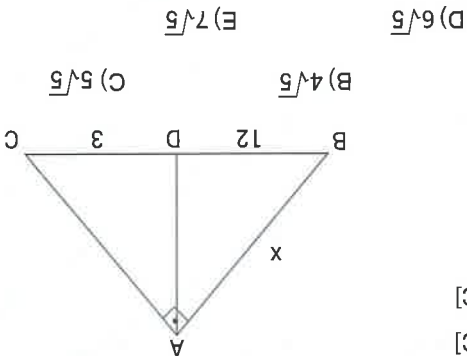
- A) 16 B) 18 C) 20 D) 22 E) 24

28. $x, y \in \mathbb{Z} \Rightarrow \frac{1+3^{x-y}}{3} + \frac{1+3^{y-x}}{3} = ?$

- A) -3 B) -2 C) 3^{2x-2y} D) 1 E) 3

1.

- [AB] ⊥ [AC]
- [AD] ⊥ [BC]
- |CD| = 3
- |BD| = 12
- $x = ?$



D) $6\sqrt{5}$

E) $7\sqrt{5}$

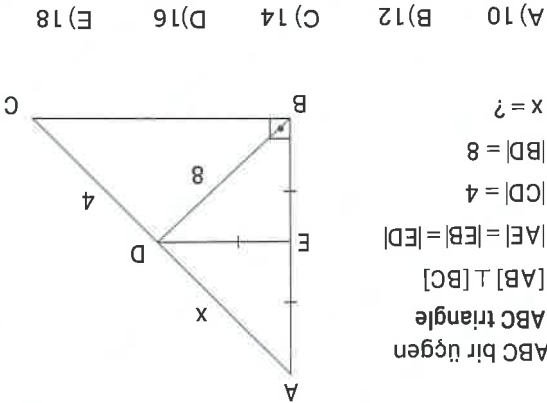
B) $4\sqrt{5}$

C) $5\sqrt{5}$

A) $3\sqrt{5}$

3.

- ABC bir üçgen
- [AB] ⊥ [BC]
- |AE| = |EB| = |ED|
- |CD| = 4
- |BD| = 8
- $x = ?$



A) 10

B) 12

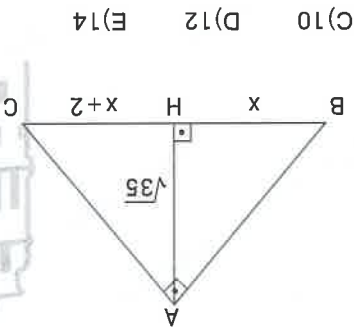
C) 14

D) 16

E) 18

2.

- [AB] ⊥ [AC]
- [AH] ⊥ [BC]
- |AH| = $\sqrt{35}$
- |BH| = x
- |HC| = $x+2$
- |BC| = ?



A) 6

B) 8

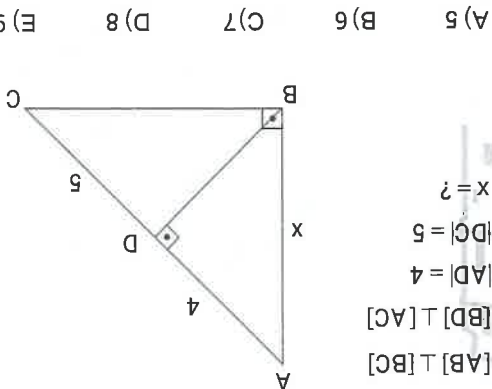
C) 10

D) 12

E) 14

4.

- [AB] ⊥ [BC]
- [BD] ⊥ [AC]
- |AD| = 4
- |DC| = 5
- $x = ?$



A) 5

B) 6

C) 7

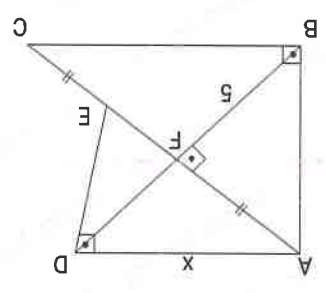
D) 8

E) 9

KTS 4

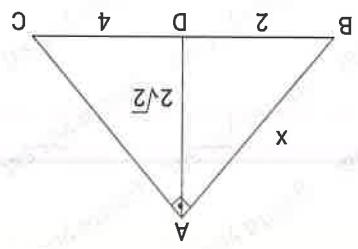
YÖS

5. [AB] ⊥ [BC]
 [AD] ⊥ [DE]
 [AC] ⊥ [BD]
 |AF| = |EC|
 |BF| = 5
 x = ?



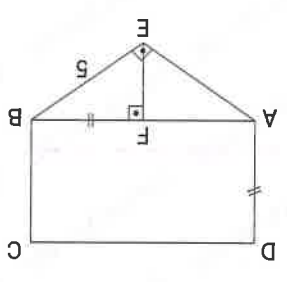
- A) 4 B) 5 C) 6 D) 7 E) 8

6. [BA] ⊥ [AC]
 |BD| = 2
 |DC| = 4
 |AD| = $2\sqrt{2}$
 x = ?



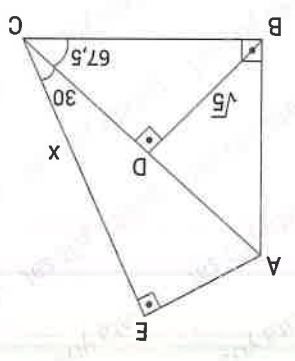
- A) $2\sqrt{3}$ B) $3\sqrt{3}$ C) $4\sqrt{3}$ D) $5\sqrt{3}$ E) $6\sqrt{3}$

7. ABCD bir dikdörtgen
 [AE] ⊥ [BE]
 [AB] ⊥ [EF]
 |AD| = |BF|
 |EB| = 5
 A(ABCD) = ?



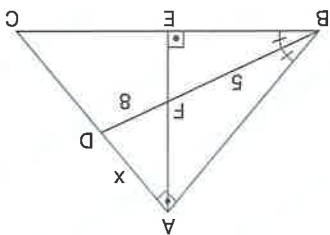
- A) 5 B) 10 C) 15 D) 20 E) 25

8. [AB] ⊥ [BC]
 [AE] ⊥ [EC]
 [BD] ⊥ [AC]
 m(BCA) = 67,5
 m(ACE) = 30
 |BD| = $\sqrt{5}$
 |EC| = x = ?



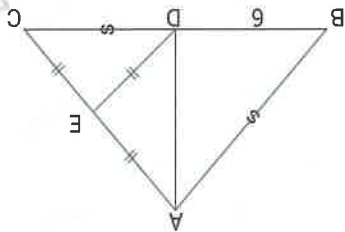
- A) $\sqrt{19}$ B) $\sqrt{29}$ C) $\sqrt{30}$ D) $\sqrt{31}$ E) $\sqrt{34}$

9. [BA] ⊥ [AC]
[AE] ⊥ [BC]
 $m(\widehat{ABD}) = m(\widehat{DBC})$
|BF| = 5
|FD| = 8
 $x = ?$



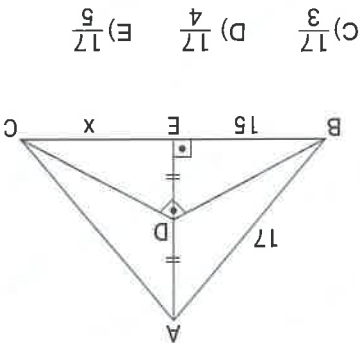
- A) $2\sqrt{13}$
B) $3\sqrt{13}$
C) $4\sqrt{13}$
D) $5\sqrt{13}$
E) $6\sqrt{13}$

10. |AE| = |EC| = |DE|
|AB| = |DC|
|AC| = 8
|BD| = 6
|AB| = ?



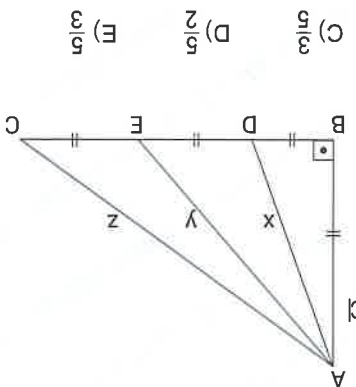
- A) 6
B) $5\sqrt{2}$
C) 7
D) 8
E) $6\sqrt{2}$

13. [BD] ⊥ [DC]
[AE] ⊥ [BC]
|AD| = |DE|
|BE| = 15
|AB| = 17
 $x = ?$



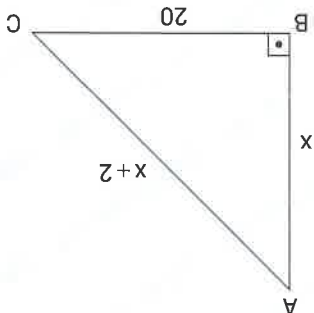
- A) $\frac{3}{16}$
B) $\frac{15}{16}$
C) $\frac{3}{17}$
D) $\frac{4}{17}$
E) $\frac{5}{17}$

11. [AB] ⊥ [BC]
|AB| = |BD| = |DE| = |EC|
|AD| = x
|AE| = y
|AC| = z
 $\sqrt{5}y^2 = x \cdot z = ?$



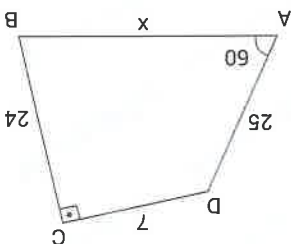
- A) $\frac{5}{1}$
B) $\frac{5}{2}$
C) $\frac{5}{3}$
D) $\frac{5}{2}$
E) $\frac{3}{5}$

14. [AB] ⊥ [BC]
|AB| = x
|AC| = x + 2
|BC| = 20
|AC| = ?



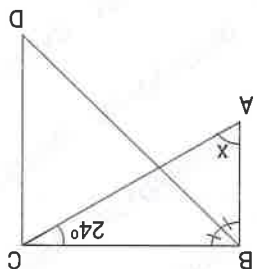
- A) 98
B) 99
C) 100
D) 101
E) 102

12. ABCD bir dörtgen
ABCD is a rectangle
[BC] ⊥ [CD]
|CD| = 7
|BC| = 24
|AD| = 25
 $x = ?$



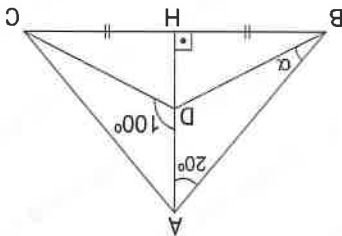
- A) 20
B) 22
C) 23
D) 24
E) 25

17. $[AB] \parallel [CD]$
 $m(\widehat{ABD}) = m(\widehat{DBC})$
 $m(\widehat{BCA}) = 24^\circ$
 $|BD| = |CD|$
 $x = ?$



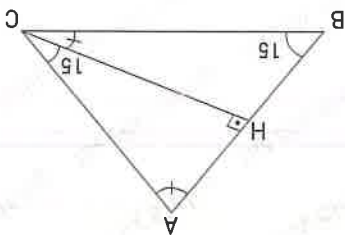
- A) 18 B) 20 C) 24 D) 36 E) 40

16. $[AH] \perp [BC]$
 $|BH| = |HC|$
 $m(\widehat{BAH}) = 20^\circ$
 $m(\widehat{ADC}) = 100^\circ$
 $\alpha = ?$



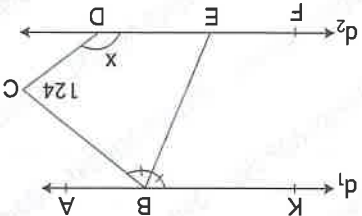
- A) 40 B) 50 C) 60 D) 70 E) 80

15. $[AB] \perp [HC]$
 $m(\widehat{BCH}) = m(\widehat{CAB})$
 $m(\widehat{ACH}) = 15^\circ = m(\widehat{ABC})$
 $|AB| = 24$
 $|CH| = ?$



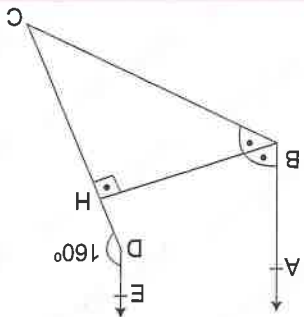
- A) 3 B) 4 C) 5 D) 6 E) 7

20. $d_2 \parallel d_1$
 $m(\widehat{BEF}) = 110^\circ$
 $m(\widehat{KBE}) = m(\widehat{EBC})$
 $m(\widehat{BCD}) = 124$
 $x = ?$



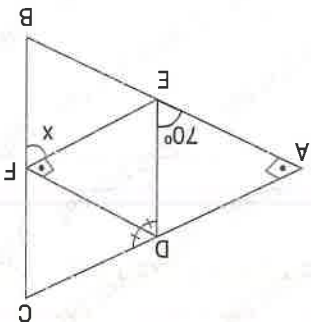
- A) 92 B) 93 C) 94 D) 95 E) 96

19. $[BA] \parallel [DE]$
 $m(\widehat{CDE}) = 160^\circ$
 $m(\widehat{CBH}) = m(\widehat{HBA})$
 $m(\widehat{HCB}) = ?$



- A) 20 B) 25 C) 45 D) 60 E) 70

18. ABC bir üçgen
 $[AB] \perp [AC]$
 $[DF] \perp [EF]$
 $m(\widehat{EDF}) = m(\widehat{FDC})$
 $m(\widehat{AED}) = 70^\circ$
 $|CD| = |DF|$
 $x = ?$



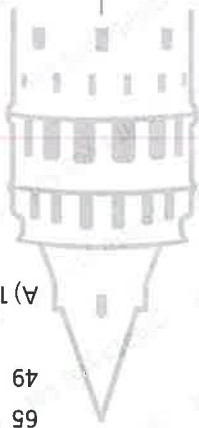
- A) 20 B) 25 C) 30 D) 40 E) 50

- A) 53 B) 57 C) 60 D) 63 E) 69
- 21 × 92 = 83
- 32 × 43 = 73
- 33 × 62 = 63
- 25 × 52 = ?

3.

- A) 96 B) 105 C) 111 D) 116 E) 120
- (4 ■ 6) ■ 8 = 48
- (3 ■ 8) ■ 9 = 54
- (12 ■ 5) ■ 5 = 75
- (14 ■ 10) ■ 3 = ?

6.



- A) 60 B) 70 C) 80 D) 90 E) 100
- 16 # 71 = 56
- 23 # 33 = 30
- 36 # 42 = 54
- 46 # 54 = ?

2.

- A) 100 B) 112 C) 144 D) 150 E) 164
- 46 ★ 18 = 70
- 83 ★ 24 = 70
- 65 ★ 36 = 99
- 49 ★ 83 = ?

5.

- A) 22 B) 23 C) 24 D) 25 E) 26
- 41 ? 26 = 13
- 56 ? 68 = 25
- 71 ? 84 = 20
- 94 ? 54 = ?

1.

- A) 5 B) 7 C) 11 D) 14 E) 18
- 42 ⊕ 81 = 16
- 85 ⊕ 52 = 4
- 73 ⊕ 97 = 3
- 61 ⊕ 93 = ?

4.

7. (1 ♠ 6) ∇ (8 ♠ 4) = 84
 (9 ♠ 3) ∇ (3 ♠ 3) = 72
 (7 ♠ 6) ∇ (2 ♠ 4) = 78
 (8 ♠ 5) ∇ (6 ♠ 5) = ?

A) 170 B) 156 C) 143 D) 96 E) 71

10. ♠ 724 = 563
 ♠ 826 = 682
 ♠ 953 = 486
 ♠ 816 = ?

A) 974 B) 794 C) 749 D) 674 E) 772

8. 8 ▼ 6 ■ 4 ● 5 = 22
 10 ■ 7 ▼ 2 ● 8 = 1
 13 ■ 2 ● 6 ▼ 4 = 21
 9 ● 3 ▼ 1 ■ 6 = ?

A) 6 B) 12 C) 22 D) 32 E) 36

11. 3641 → 27
 2466 → 36
 8192 → 25
 2597 → ?

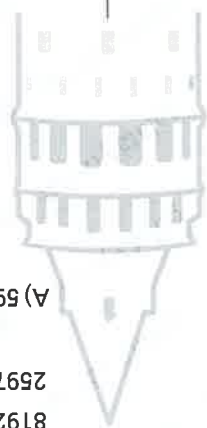
A) 59 B) 73 C) 53 D) 28 E) 23

9. (6 # 8) × 6 × 4 = 4
 (9 × 3) # 5 × 2 = 13
 (4 × 3) # 8 × 4 = 2
 (2 # 6) × 9 × 3 = ?

A) 8 B) 9 C) 10 D) 11 E) 12

12. ○ - ♡ = 11
 ♡ + ☆ = 14
 ○ + ♡ = 21
 ♡ + ☆ = 17
 ○ + ♡ + ☆ = ?

A) 38 B) 50 C) 59 D) 66 E) 71



13. 17 - \downarrow = \Leftrightarrow 48 \div \downarrow = \Leftrightarrow -333 + \downarrow = $4 \cdot \downarrow + \Leftrightarrow$ \Leftrightarrow + \downarrow = ?

A) -1 B) 72 C) 17 D) 71 E) 27

14. ■ 73 = 910

■ 69 = 816

■ 57 = 714

■ 36 = ?

A) 109 B) 193 C) 113 D) 613 E) 513

16. [(x ≠ t) ≠ (z ≠ k)] = ?

A) t

B) x

C) y

D) z

E) k

z ≠ z = y
k ≠ k = y

#	x	y	x	z	k
x	t	k	x	y	t
y	k	y	k	x	z
z	x	z	y	t	k
t	y	t	z	k	x
k	z	k	t	x	y

16-17. soruları aşağıdaki bilgilere göre cevaplanacaktır.
Answer 16th and 17th questions according to the following information.

Özellik Feature

15. $5k \times \frac{4}{3l} = 7k + l$
 $k^2 \times l^3 = k^3 + l^2$
 $(20 \times 48) - (16 \times 8) = ?$

A) 26 B) 25 C) 24 D) 23 E) 22

17. z ≠ (x ≠ a) = x

a = ?

A) x

B) y

C) z

D) t

E) k

18. $11 \times 4 = 34$
 $14 \times 9 = 55$
 $17 \times 13 = 73$
 $16 \times 8 = ?$

A) 16 B) 26 C) 36 D) 46 E) 56

21. 987 783 581 405 ?

A) 100 B) 80 C) 60 D) 40 E) 20

19. 397 → 973

846 → 846

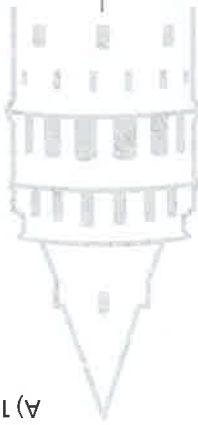
351 → 513

284 → ?

A) 842 B) 428 C) 284 D) 824 E) 482

22. 23 42 25 82 27 ?

A) 19 B) 26 C) 43 D) 44 E) 72



20. 7 39 8 17 4 15 7 13 5 ?

A) 22 B) 23 C) 24 D) 25 E) 30

23. 298 765 429 876 542 ?

A) 987 B) 765 C) 683 D) 502 E) 444

25. 15 20 21 16 32 37 ... 48 49 54

A) 51 B) 52 C) 53 D) 54 E) 55

27. ACAYIP 111001
ADALAR 101000
ALANYA 111010
LALELI 101110

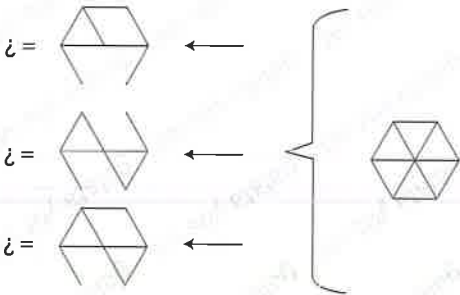
A) 110101 B) 101100 C) 110001
D) 100101 E) 100011

ALPAKA = ?

24. 16 15 23 24 17 52 ?

A) 43 B) 54 C) 82 D) 93 E) 104

26.



A) 556 B) 823 C) 923 D) 729 E) 249

29. SARIK, ZASAK, SASAK, SAZGI, SÜRGE ve ZARGI kelimeleri rakamlarla kodlanmıştır. Buna göre aşağıdaki kodlardan hangisi ZARGI kelimesine aittir ?
- Which of following codes belongs to ZARGI
- A) 19768 B) 19480 C) 79468 D) 79190 E) 13462

28. $\overbrace{KLMN} = KMLN$
 $\overbrace{KLMN} = NLMK$
 $\overbrace{KLMN} = LKNM$
 $\overbrace{7K2N} + \overbrace{7NK2} - \overbrace{K72N} = 9827$
 $N - K = ?$
- A) 1 B) 2 C) 3 D) 4 E) 5

1. $\frac{(x+y)^2 - x - y}{x+y} = 4 \Rightarrow x+y = ?$

- A) 2 B) 3 C) 4 D) 5 E) 6

Matematik Maths

30. NER|NA 518645
 SENER|I 608964
 S|RNAS 430895
 AŞER|S 243481
 BAŞAR|I 506089
- A) 518645 B) 608964 C) 430895 D) 243481 E) 506089
- AŞER|S = ?

2. $x^3 + x^2 + x + 1$

İfadesinin garpanlarından biri hangisidir ?

what is one of the multipliers of expression?

- A) $x^2 - 1$ B) $x^2 + 1$ C) $x - 1$
D) $x^3 - 1$ E) x

3. $\frac{x^2 + 2x - 3}{3x^2 - 4x - 4} \cdot \frac{x^2 + x - 6}{3x^2 + 2x} = ?$

A) $\frac{x-1}{x+2}$

B) $1 - \frac{x}{1}$

D) $\frac{x}{1}$

C) $\frac{3x+2}{x}$

E) $\frac{x+2}{1}$

6. $\frac{x^2 + xy^2}{x^2 + xy^2} = ?$

A) x

B) y

C) x, y

D) x^2

E) y^2

4. $\frac{x^2 + 4x + m}{x^2 + 2x + t}$

İfadesinin en sade biçimi $\frac{x+6}{x+4}$ olduğuna göre $m + t$ kaçtır ?

since the simplest form of the expression is $\frac{x+6}{x+4}$ what is $m + t$?

- A) -20 B) -10 C) -8 D) 10 E) 20

7. $\frac{a}{b} + \frac{a}{b} = 6 \Rightarrow \frac{a}{(a-b)^2} = ?$

A) 3

B) 4

C) 5

D) 6

E) 8

5. $\frac{x^3 - 8}{x^2 + 2x + 4} : \frac{x^2 - 3x + 2}{x^2 - 1} = ?$

A) $\frac{x-1}{x-2}$

B) $\frac{x-2}{x+1}$

D) $x+1$

E) $x-2$

C) $\frac{x}{x+1}$

8. $x^2 - y^2 - 2y - 1 - \frac{x^2 - y^2}{x - y} = ?$

- A) -1
B) 1
C) $x + y$
D) $x - y$
E) $x + 1$

11. $\sqrt{15 \cdot 17 \cdot 19 \cdot 21 + 16} = ?$

- A) 324
B) 225
C) 319
D) 220
E) 219

9. $x + \frac{1}{x} = 7$

$\Rightarrow x - \frac{1}{x}$ in pozitif degeri kacir ?
 \Rightarrow what is the positive value of $x - \frac{1}{x}$

- A) $2\sqrt{5}$
B) $3\sqrt{5}$
C) $2\sqrt{7}$
D) 5
E) $\sqrt{46}$

10. $x^3 + 3x^2y + 3xy^2 + 27 - y^3 = 27 - y^3 \Rightarrow x^2 + 2xy + y^2 = ?$

- A) 11
B) 12
C) 13
D) 14
E) 15

13. $x = \sqrt[3]{5} - 1 \Rightarrow x^3 + 3x^2 + 3x + 7 = ?$

- A) -4
B) -3
C) 0
D) 2
E) 5

12. $x, y, z \in \mathbb{R}$
 $x^2 + y^2 + z^2 - 6x + 8y - 2z + 26 = 0$
 $\Rightarrow x + y + z = ?$

$$14. (2^x - 1)(2^x + 1)(4^x + 1)(16^x + 1) = 16^{18} - 1$$

$$\Rightarrow x = ?$$

- A) 5 B) 6 C) 7 D) 8 E) 9

$$17. 4 - \frac{4 - \frac{4 - \frac{4 - \frac{4 - 1}{2}}{2}}{2}}{16} = 0 \Rightarrow \frac{3x - 2}{3x + 2} = ?$$

- A) $\frac{1}{2}$ B) $\frac{2}{3}$ C) 1 D) 2 E) 3

$$15. \frac{a^2 + b^2 + 4a + 7}{42} = ?$$

İfadesinin alabileceği en büyük değer kaçtır ?

what is the biggest value that can the expression get?

- A) 10 B) 12 C) 14 D) 16 E) 18

18. Toplamları 100 olan iki sayıdan büyüğünün yarısı ile küçüğünün toplamı 65 tir. Buna göre küçük sayının yarısı ile büyük sayının toplamı kaçtır ?

The sum of 2 numbers is 100, the sum of half the big number and the small one is 65. Accordingly, what is

the sum of the big number and of half the small number?

- A) 60 B) 65 C) 70 D) 75 E) 85

$$19. x = (2^3)^4$$

$$y = 2^{(3^4)}$$

$$z = (2^{12})^3$$

x, y, z sıralaması aşağıdakilerden hangisidir ?
Which of the following is x,y,z order ?

- A) $z < x < y$
B) $z < y < x$
C) $y < x < z$
D) $x < y < z$
E) $x < z < y$

$$16. A = \frac{10}{12} + \frac{11}{13} - \frac{17}{16}, B = \frac{11}{12} + \frac{14}{13} - \frac{17}{18} \Rightarrow A+B=?$$

- A) -1 B) 0 C) 1 D) 2 E) 3

20. $\left(\frac{3-x}{x+y} \right)^{x+y} \cdot \left(\frac{5-y}{5-x} \right)^{x+y} = ?$

- A) $\frac{5}{3}$
- B) $\left(\frac{5}{3} \right)^{x+y}$
- C) $\left(\frac{3}{5} \right)^{x^2-y^2}$
- D) 1
- E) 5^{x-y}

21. $(x+2)^{x^2+x-1} = 1 \Rightarrow \sum x = ?$

- A) -1
- B) -2
- C) -3
- D) -4
- E) -5

22. $\frac{\sqrt{5}-1}{\sqrt{5}+1} + \frac{\sqrt{5}+1}{\sqrt{5}-1} = ?$

- A) 3
- B) $\sqrt{5}$
- C) $12-4\sqrt{5}$
- D) $12+4\sqrt{5}$
- E) 12

25. $\sqrt{4,9} + \sqrt{0,9} = ?$

- A) 1
- B) 10
- C) $\sqrt{10}$
- D) $5\sqrt{10}$
- E) $10\sqrt{10}$

24. $\frac{\sqrt{9a+1}}{\sqrt{9a-3b}} = 27 \Rightarrow b^b = ?$

- A) 2
- B) 4
- C) 3
- D) 9
- E) 16

23. $\sqrt[4]{0,0081} + \sqrt{0,04} = ?$

- A) 2,5
- B) 1,5
- C) 1
- D) 0,5
- E) 0,1



26. $\sqrt{a+2} - \sqrt{a-2} = x$

$\sqrt{a+2} + \sqrt{a-2} = ?$

D) $\frac{x}{4}$

A) $4+x$

B) $4-x$

C) $\frac{4}{x}$

E) $4x$

27. $\sqrt{4-\sqrt{7}} - \sqrt{4+\sqrt{7}} = ?$

A) $-\sqrt{3}$ B) $-\sqrt{2}$ C) $\sqrt{2}$ D) $\sqrt{3}$ E) 2

28. $\frac{\sqrt{1+\sqrt{3}}}{1} + \frac{\sqrt{3+\sqrt{5}}}{1} + \frac{\sqrt{5+\sqrt{7}}}{1} + \dots + \frac{\sqrt{79+\sqrt{81}}}{1} = ?$

A) -7 B) -5 C) 4 D) 5 E) 7

29. $\sqrt[3]{28-16\sqrt{3}} = ?$

A) $2+2\sqrt{3}$

B) $2-2\sqrt{3}$

C) $\sqrt{3}+2$

D) $\sqrt{3}-1$

E) $\sqrt{3}+1$

30. $\frac{\sqrt{7+\sqrt{5}+2}}{\sqrt{7-\sqrt{5}+1}} = ?$

A) $\sqrt{7}-\sqrt{5}$

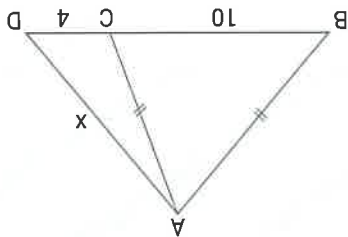
B) $\sqrt{7}+\sqrt{5}$

C) $2\sqrt{7}-\sqrt{5}$

D) $\sqrt{7}+\sqrt{5}+1$

E) 3

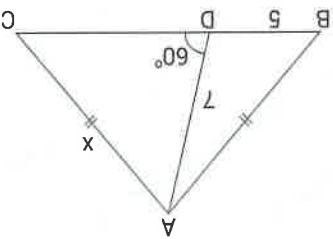
1. $|AB| = |AC| = 13$
 $|CD| = 4$
 $|BC| = 10$
 $x = ?$



- A) 11 B) 12 C) 13 D) 14 E) 15

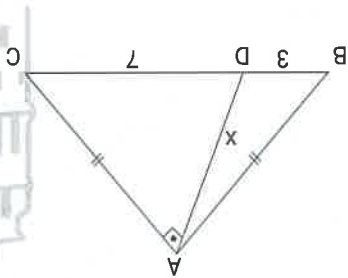
3.

- $|AB| = |AC|$
 $|BD| = 5$
 $|AD| = 7$
 $m(\widehat{ADC}) = 60^\circ$
 $|AC| = x = ?$



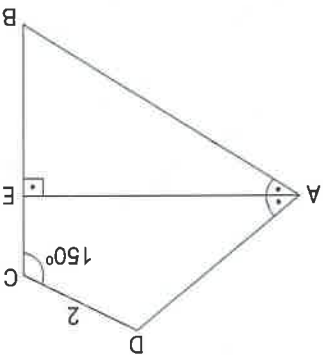
- A) 10 B) $\sqrt{109}$ C) 11 D) $\sqrt{131}$ E) 13

2. ABC bir üçgen
 $|AB| = |AC|$
 $|BD| = 3$
 $|CD| = 7$
 $[AD] \perp [AC]$
 $x = ?$



- A) 4 B) 5 C) 6 D) $\sqrt{14}$ E) $\sqrt{15}$

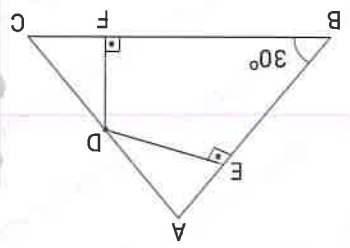
4. $m(\widehat{BAE}) = m(\widehat{EAD})$
 $[AE] \perp [BC]$
 $m(\widehat{BCD}) = 150^\circ$
 $|CD| = 2$
 $|CE| = 3\sqrt{3}$
 $|EB| = 5\sqrt{3}$
 $\widehat{C}(\widehat{ABCD}) = ?$
 perimeter



- A) $20 + 8\sqrt{3}$ B) $16 + 8\sqrt{3}$ C) $16 - 8\sqrt{3}$
 D) $20 - 8\sqrt{3}$ E) $10 + 8\sqrt{3}$

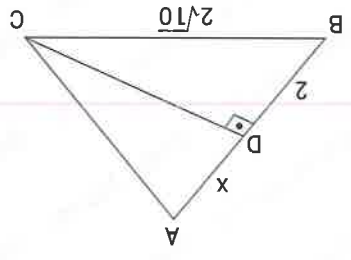
6. ABC bir üçgen
 $|AB| = |BC|$
 $m(\widehat{ABC}) = 30^\circ$
 $|DE| = 4$
 $|DF| = 2$
 $|BC| = ?$

- A) 12 B) 13 C) 14 D) 15 E) 16



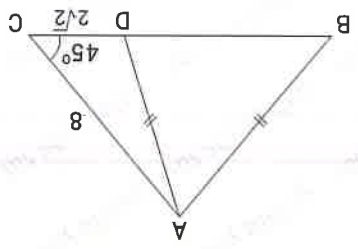
8. $[AB] \perp [DC]$
 $|AB| = |AC|$
 $|BD| = 2$
 $|BC| = 2\sqrt{10}$
 $|AD| = ?$

- A) 7 B) 8 C) 9 D) 10 E) 11



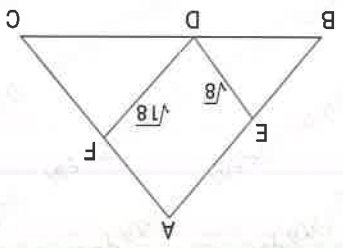
5. $|AB| = |AD|$
 $m(\widehat{BCA}) = 45^\circ$
 $|CD| = 2\sqrt{2}$
 $|AC| = 8$
 $|BC| = ?$

- A) $3\sqrt{2}$ B) $4\sqrt{2}$ C) $5\sqrt{2}$ D) $6\sqrt{2}$ E) $7\sqrt{2}$

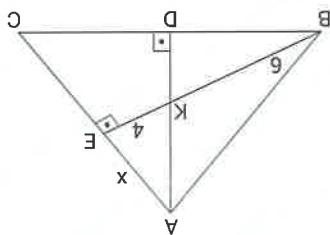


7. $[AB] \parallel [DF]$
 $[DE] \parallel [AC]$
 $|AB| = |AC|$
 $|AB| = ?$

- A) $4\sqrt{2}$ B) $5\sqrt{2}$ C) $6\sqrt{2}$ D) $7\sqrt{2}$ E) 16

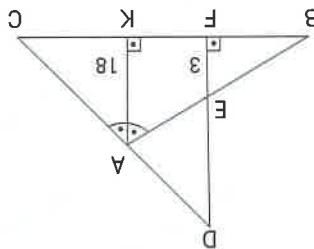


9. $[AC] \perp [BC]$
 $[AD] \perp [BC]$
 $|AC| = |BC|$
 $|KE| = 4$
 $|BK| = 6$
 $|AE| = x = ?$



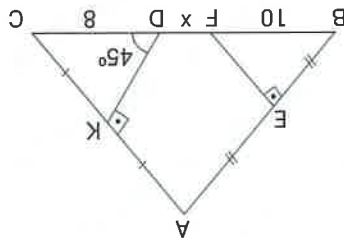
- A) $2\sqrt{2}$ B) $2\sqrt{3}$ C) $2\sqrt{5}$ D) $3\sqrt{6}$ E) $4\sqrt{5}$

10. $m(\widehat{BAK}) = m(\widehat{KAC})$
 $[DE] \perp [BC]$
 $[AK] \perp [BC]$
 $|EF| = 3$
 $|AK| = 18$
 $|DE| = ?$



- A) 18 B) 20 C) 24 D) 26 E) 30

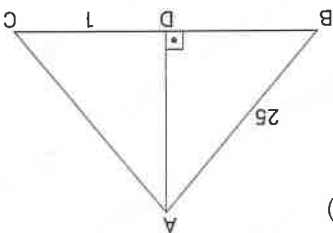
11. $|AE| = |BE|$
 $|AK| = |KC|$
 $m(\widehat{KDC}) = 45^\circ$
 $[AC] \perp [DK]$
 $[EF] \perp [AB]$
 $|CD| = 8$
 $|BF| = 10$
 $x = ?$



- A) 6 B) 7 C) 8 D) 9 E) 10

12. $m(\widehat{ABC}) = 2 m(\widehat{DAC})$

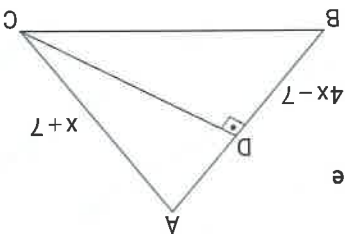
- $[AD] \perp [BC]$
 $|CD| = 1$
 $|AB| = 25$
 $|AC| = ?$



- A) 7 B) 8 C) 24 D) $5\sqrt{2}$ E) $5\sqrt{3}$

13. ABC eşkenar üçgen

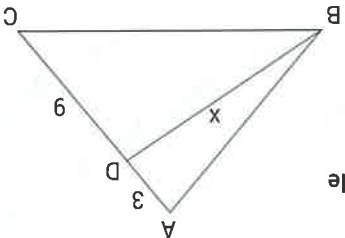
- $|AC| = x + 7$
 $|BD| = 4x - 7$
 $[AB] \perp [CD]$
 $|BC| = ?$



- A) 7 B) 8 C) 9 D) 10 E) 12

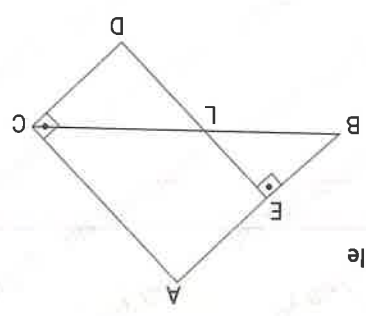
14. ABC eşkenar üçgen

- $|AD| = 3$
 $|CD| = 9$
 $x = ?$



- A) $\sqrt{13}$ B) $2\sqrt{13}$ C) $3\sqrt{13}$ D) $4\sqrt{13}$ E) $5\sqrt{13}$

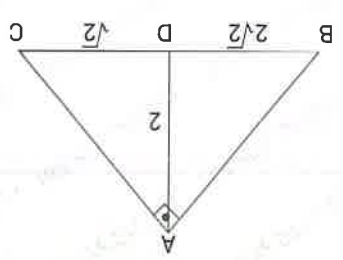
15. ABC eşkenar üçgen
ABC equilateral triangle



- |EL| = $2\sqrt{3}$
- |CD| = $7\sqrt{3}$
- [AC] ⊥ [CD]
- [AB] ⊥ [DE]
- |AE| = ?

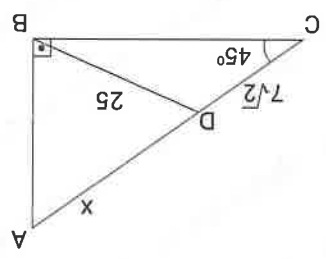
- A) 20 B) 21 C) 22 D) 23 E) 24

18. [AB] ⊥ [AC]
|CD| = $\sqrt{2}$
|BD| = $2\sqrt{2}$
|AD| = 2
|AB| = ?



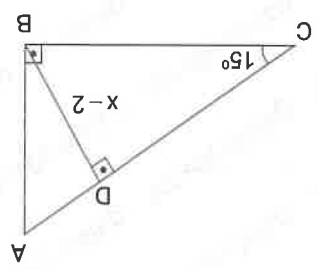
- A) 2 B) 3 C) $2\sqrt{2}$ D) $2\sqrt{3}$ E) $2\sqrt{6}$

16. [AB] ⊥ [BC]
 $m(\widehat{ACB}) = 45^\circ$
|CD| = $7\sqrt{2}$
|BD| = 25
|AD| = x = ?



- A) $20\sqrt{2}$ B) $22\sqrt{2}$ C) $24\sqrt{2}$ D) $25\sqrt{2}$ E) $26\sqrt{2}$

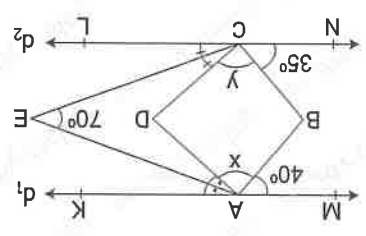
17. [AB] ⊥ [BC]
[AC] ⊥ [BD]
 $m(\widehat{ACB}) = 15^\circ$
|AC| = 20
|BD| = x - 2
x = ?



- A) 7 B) 8 C) 9 D) 10 E) 12

20.

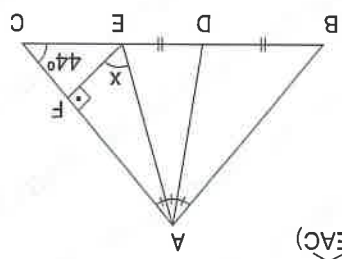
$d_1 // d_2$
 $m(\widehat{KAE}) = m(\widehat{EAD})$
 $m(\widehat{ECL}) = m(\widehat{ECD})$
 $m(\widehat{AEC}) = 70^\circ$
 $m(\widehat{MAB}) = 40^\circ$
 $m(\widehat{BCN}) = 35^\circ$
x + y = ?



- A) 100 B) 115 C) 125 D) 135 E) 145

19.

$m(\widehat{BAD}) = m(\widehat{DAE}) = m(\widehat{EAC})$
[EF] ⊥ [AC]
 $m(\widehat{BCA}) = 44^\circ$
|BD| = |DE|
x = ?



- A) 66 B) 67 C) 68 D) 69 E) 70

3.

A) 13 11	6 11	3 10	8 10
7 6	9 8	11 10	11 10

B) 8 10	5 6	7 6
8 5	7 7	?

C) 11 12

D) 7 6

E) 8 5

2.

A) 4	B) 5	C) 7	D) 8	E) 10
------	------	------	------	-------

1.

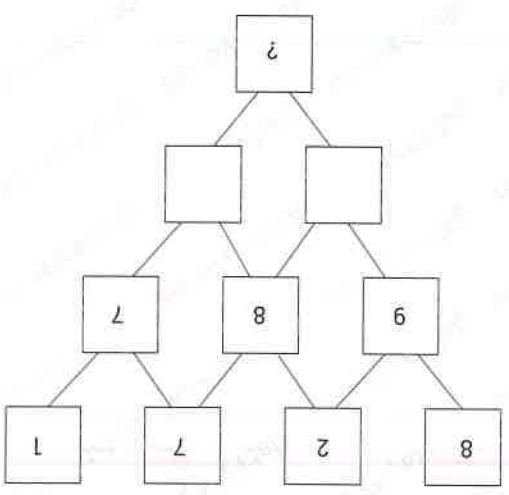
A) 16:43

B) 16:27

C) 16:07

D) 15:49

E) 15:27



A) 326427

B) 646481

C) 64881

D) 166481

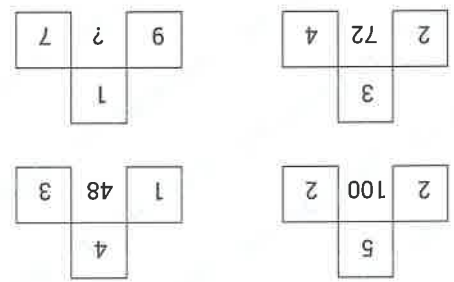
E) 32881

= 2716243

= 641256

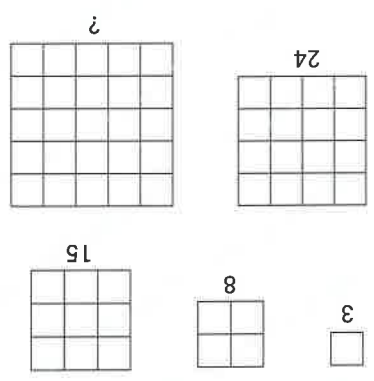
= ?

6.



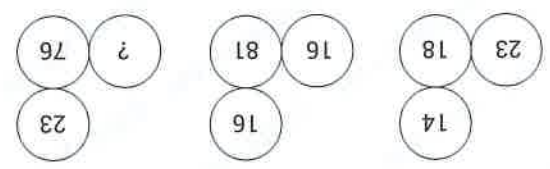
- A) 100 B) 89 C) 76 D) 63 E) 54

7.



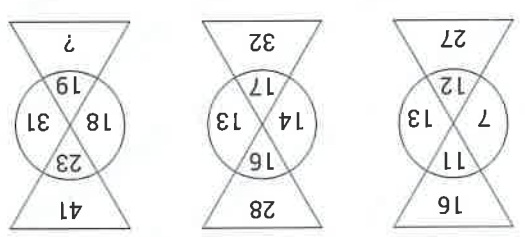
- A) 25 B) 33 C) 35 D) 49 E) 81

8.



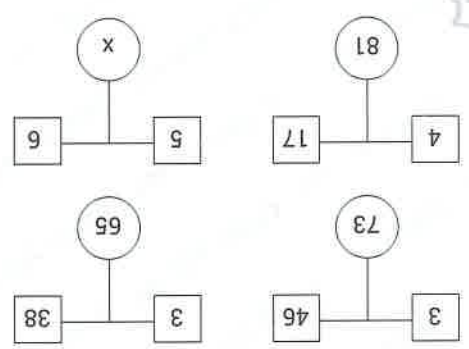
- A) 81 B) 64 C) 49 D) 36 E) 25

9.



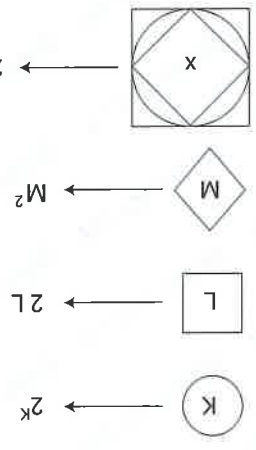
- A) 50 B) 47 C) 43 D) 39 E) 38

10.



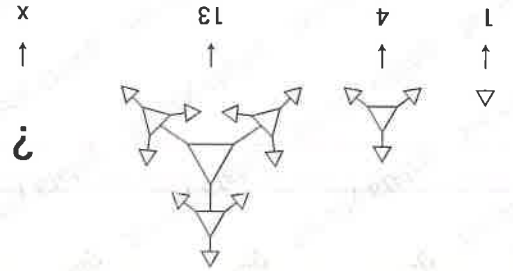
- A) 82 B) 96 C) 103 D) 120 E) 131

11.



- A) 2 B) 5 C) 8 D) $\sqrt{5}$ E) $\sqrt{8}$

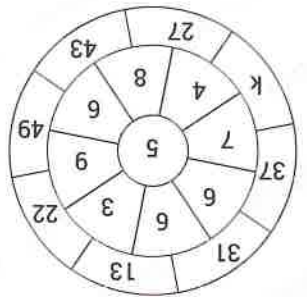
12.



A) 49 B) 46 C) 43 D) 40 E) 36

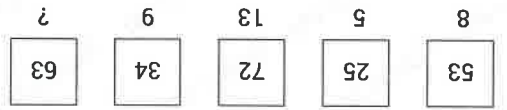
$x = ?$

13.



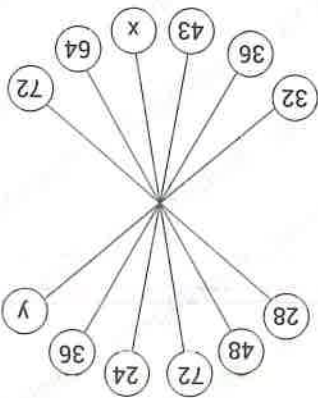
A) 23 B) 25 C) 27 D) 29 E) 31

14.



A) 7 B) 9 C) 10 D) 12 E) 13

15.



A) $x = 49$
 B) $x = 24$

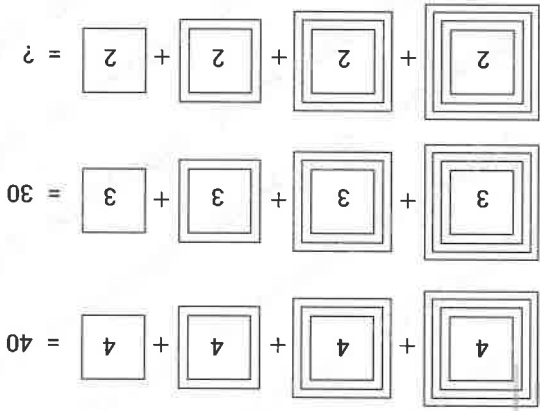
C) $x = 66$
 D) $x = 66$

E) $x = 81$
 $y = 12$

D) $x = 66$
 $y = 18$

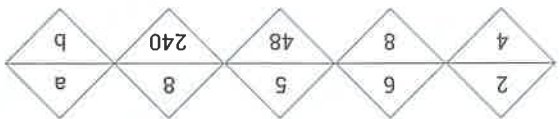
B) $x = 24$
 $y = 18$

16.



A) 24 B) 23 C) 22 D) 21 E) 20

17.



- A) $a = 6$
 $b = 1920$
- B) $a = 6$
 $b = 2840$
- C) $a = 14$
 $b = 1920$
- D) $a = 14$
 $b = 2840$
- E) $a = 8$
 $b = 480$

18.

5	4	2	7
9	6	4	8
6	4	3	2
4	6	?	3

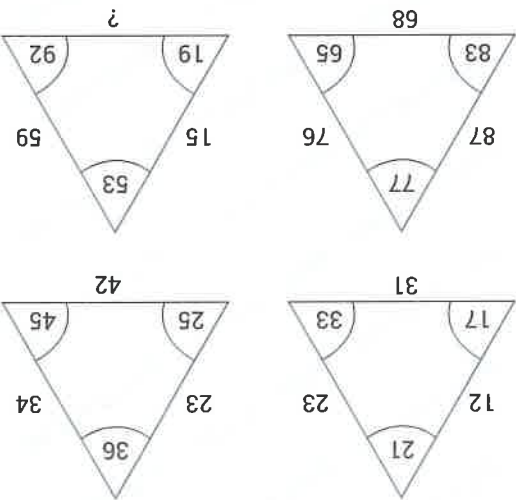
- A) 1
- B) 2
- C) 3
- D) 4
- E) 5

19.

6	2	6	3
2	5	2	3
4	3	4	6
3	?	7	2

- A) 5
- B) 4
- C) 3
- D) 2
- E) 1

20.



- A) 91
- B) 92
- C) 56
- D) 65
- E) 32

22.

- 346 → 36
- 721 → 16
- 374 → 49
- 527 → ?

- A) 24
- B) 25
- C) 35
- D) 36
- E) 81

21.

- $6x + b = 3 + 3b$
- $3x + 8 = 15$
- $9x + 4 = 21$
- $12x + 3 = ?$

- A) 20
- B) 21
- C) 22
- D) 23
- E) 24

29. Digital bir göstergede rakamları göstermek için kullanılan çizgi sayısı aşağıdaki tabloda verilmiştir.

The number of lines used to display numbers in a digital display is given in the table below.

9	8	7	6	5	4	3	2	1	0
5	7	6	6	4	5	6	3	2	5

12 çizgi kullanılarak oluşturulabilecek rakamları farklı en küçük 3 basamaklı sayı aşağıdakilerden hangisidir? Which of the following is the smallest three digit number whose numbers can be formed using twelve lines?

- A) 109 B) 165 C) 104 D) 102 E) 100

30. $ABDİN + AZARİ = ARİBİN$

$GAYYUR + HOORDAT = ?$

- A) ORYAR B) ORDAUR C) ORDARY

- D) ORUYAR E) ORDGAT

3. a ve b tam sayılardır.

a and b are integers

$$3 < a < 10 \text{ ve } -4 \leq b < 6$$

olduğuna göre, $2a + 3b$ ifadesinin en küçük tam sayı değeri kaçtır?

accordingly, what is the smallest integer value of $2a+3b$ expression?

- A) 0 B) -2 C) -3 D) -4 E) -6

4. $m, n \in \mathbb{R}$

$$-3 \leq m < 2 \text{ ve } -5 \leq n < 4$$

olduğuna göre, $m + n$ nin en büyük ve en küçük tam sayı değerleri toplamı kaçtır?

accordingly, what is the sum of the biggest and smallest integer values $m+n$?

- A) -3 B) -2 C) 0 D) 2 E) 3

1. eşitsizliğin çözüm kümesi hangisidir?

$$\frac{x+3}{2} - 2 \leq \frac{x+1}{3}$$

what is the solution set of the inequality?

- A) $[0,4)$ B) $[-5,0)$ C) $(-\infty,5]$ D) $(2,20)$ E) $(-7,12)$

7. $x > x^2 > |x|$ eşitsizliğini sağlayan değerler aşağıdakilerden hangisidir ?
which of the following value provide the inequality?
- A) $(-\infty, -1)$ B) $(-\infty, 0)$ C) $(-1, 0)$ D) $(-1, 1)$ E) $(0, 1)$
8. $a < b, c < 0$ ise aşağıdakilerden hangisi yanlıştır ?
which of the following is false ?
- A) $2a < a+b$ B) $a+b < 2b$ C) $ac < b \cdot c$ D) $a+c < b+c$ E) $a < \frac{a+b}{2} < b$
9. $|2-\sqrt{5}|+|3-\sqrt{5}|-|1-\sqrt{2}|-|2|=?$
- A) $2-\sqrt{2}$ B) $1-\sqrt{2}$ C) -2 D) $-\sqrt{2}$ E) -1
10. $-3 < x < 5$ için $|x+3|+|x-5|=?$
- A) 8 B) 4 C) $2x$ D) $x-8$ E) $2x-2$
6. $-4 < a \leq 2$ ve $3a^2 + 2b = 2$ olduğuna göre, b nin en küçük tam sayı değeri kaçtır ?
olduğuna göre, b nin en küçük tam sayı değeri kaçtır ?
accordingly, what is the minimum integer value of b ?
- A) -10 B) -15 C) -20 D) -22 E) -23
5. $x, y \in \mathbb{R}$
 $-3 < x \leq 4$ ve $-4 \leq y < 6$
 $\min(x \cdot y) + \max(x \cdot y) = ?$
- A) 4 B) 6 C) 8 D) 10 E) 13

$$|x-y| - \sqrt{x^2 - 4xy + 4y^2} + |y| = ?$$

11. $0 < x < y$ için
- A) $2x - 2y$
 - B) $2x$
 - C) $-x$
 - D) $2y$
 - E) 0

$$14. |x-3| + |x+5| = 12 \Rightarrow \text{S.S} = ?$$

- A) $\{-7\}$
- B) $\{5\}$
- C) $\{7\}$
- D) $\{-7,5\}$
- E) $\{5,7\}$

$$12. |x-3|=5 \Rightarrow x = ?$$

- A) $\{-2\}$
- B) $\{8\}$
- C) \emptyset
- D) $\{-2,8\}$
- E) \mathbb{R}

$$15. 3 < x < 4$$

$$\Rightarrow \sqrt{x^2 - 5x + 5} + \sqrt{x^2 - 8x + 16} = ?$$

- A) $3-x$
- B) $2-x$
- C) $2+x$
- D) $3+x$
- E) $x-3$

$$13. |x-0,3| \leq 0,6 \Rightarrow \text{S.S} = ?$$

- A) $\left[-\frac{3}{5}, 6\right]$
- B) $\left[-\frac{4}{15}, \frac{14}{15}\right]$
- C) $\left[\frac{15}{4}, \frac{14}{15}\right]$
- D) $\left[-\frac{14}{4}, \frac{15}{4}\right]$
- E) $\left(-\frac{14}{15}, \frac{15}{4}\right)$

$$16. \frac{5,1+2,8}{0,7+1,2} = ?$$

- A) 1
- B) 2
- C) 4
- D) $0,15$
- E) $0,02$

17. $x \neq 0, y \neq 0$

$$\begin{cases} 3xy + y^2 = 5y \\ 4xy - 5x^2 = 3x \end{cases} \Rightarrow \frac{y}{x} = ?$$

- A) $\frac{2}{1}$
- B) 1
- C) 2
- D) $\frac{2}{3}$
- E) $\frac{3}{5}$

20. $a = b^{4-3y} = c^{4x+3y}$

$\Rightarrow (b \cdot c)^{16x^2-9y^2} = ?$

- A) a^{8y}
- B) a^{8x}
- C) a^{4x-3y}
- D) $a^{16x^2-9y^2}$
- E) a^{4x+3y}

18. $x = \left(\frac{1}{4}\right)^{\frac{1}{2}}, y = \left(\frac{1}{4}\right)^{\frac{1}{6}}, z = \left(\frac{1}{4}\right)^{\frac{1}{8}}$

ise x, y, z sıralaması nasıldır?
which of the following is x, y, z order?

- A) $x > y > z$
- B) $y > x > z$
- C) $z > x > y$
- D) $y < z > x$
- E) $z > y > x$

21. $\frac{8}{\sqrt[3]{2}} = ?$

- A) $2\sqrt[3]{2}$
- B) $2\sqrt{2}$
- C) $4\sqrt[3]{4}$
- D) 4
- E) $16\sqrt[3]{2}$

22. $\sqrt{\frac{16}{25} + \frac{1}{4}} - \frac{5}{4} = ?$

- A) $\frac{3}{10}$
- B) $\frac{3}{5}$
- C) $\frac{5}{4}$
- D) $\frac{5}{3}$
- E) $\frac{10}{3}$

19. $\frac{b}{a} = \frac{2}{3}, a^b = b^a \Rightarrow a = ?$

- A) $\frac{1}{3}$
- B) $\frac{3}{2}$
- C) $\frac{9}{8}$
- D) $\frac{8}{9}$
- E) $\frac{27}{8}$

23. $x < y < 0 < z$ olduğuna göre

$$\sqrt{(x-z)^2} - \sqrt{(y-z)^2} + \sqrt{(y-x)^2} = ?$$

- A) $x-y+z$
 B) $x-2y-2z$
 C) $2y-2z$
 D) $2y-2x$
 E) $x-y+z$

26. $a \neq 0, b \neq 0$
 $\frac{1}{1} - \frac{1}{1} = \frac{4}{1}, \frac{a^2}{1} - \frac{b^2}{1} = \frac{16}{3} \Rightarrow a+b = ?$

- A) 2 B) 4 C) 6 D) 8 E) 10

24. $a, b \in \mathbb{Z}$ ve $\sqrt{a} + \sqrt{b} = 9$ olduğuna göre, $a + b$ değeri

aşağıdakilerden hangisi olamaz ?

since $a, b \in \mathbb{Z}$ and $\sqrt{a} + \sqrt{b} = 9$ which of the following

cannot be the $a + b$ value?

- A) 45 B) 53 C) 65 D) 81 E) 83

25. a ve b reel sayılar olmak üzere,

a and b are real numbers,

$$a^2 + 10b^2 - 6ab - 4b + 13$$

ifadesinin alabileceği en küçük değer kaçtır ?

what is the smallest value that can the expression gets?

- A) 5 B) 6 C) 7 D) 8 E) 9

28. $\frac{6x^2 - xy - y^2}{3x + y} : \frac{4x^2 - y^2}{2x^2 + xy} = ?$

- A) 1 B) x

D) $\frac{x+1}{2}$

E) $\frac{x-1}{2x+y}$

- C) $2x$

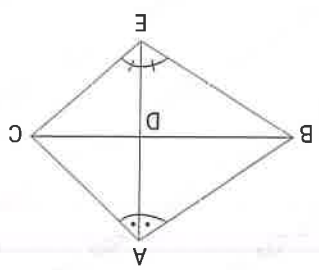
KTS 6

YÖS

29. $x + y + z = 6$
 $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 0 \Rightarrow x^2 + y^2 + z^2 = ?$

- A) 6 B) 18 C) 36 D) 48 E) 72

1. $m(\widehat{BAD}) = m(\widehat{DAC})$
 $m(\widehat{BED}) = m(\widehat{DEC})$
 $2|AB| = 3|AC|$
 $|BE| = 9$
 $|CE| = ?$

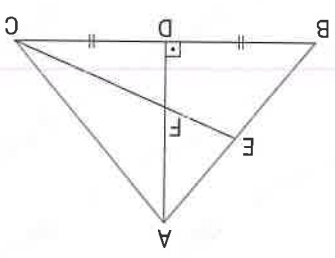


- A) 4 B) 5 C) 6 D) 7 E) 8

30. $x + y = y + z = 8 \Rightarrow x^2 - y^2 - 16z = ?$

- A) -64 B) -32 C) 16 D) 32 E) 64

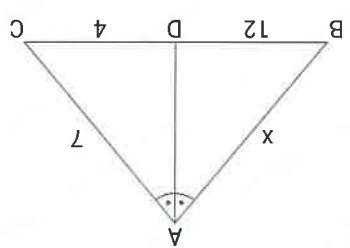
2. ABC bir üçgen
 $[AD] \perp [BC]$
 $|BD| = |DC|$
 $|FC| = 4|EF|$
 $|AC| = 16$
 $|BE| = ?$



- A) 10 B) 11 C) 12 D) 13 E) 14

3.

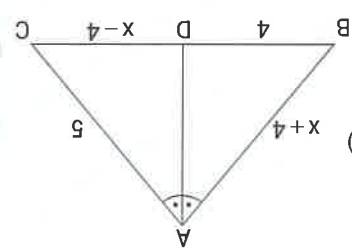
ABC bir üçgen
 $m(\widehat{BAD}) = m(\widehat{DAC})$
 $|DC| = 4$
 $|AC| = 7$
 $|BD| = 12$
 $x = ?$



- A) 20 B) 21 C) 22 D) 27 E) 30

4.

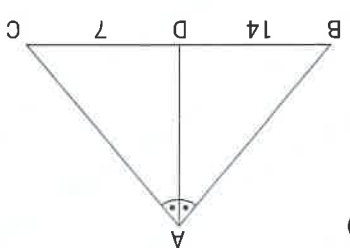
ABC bir üçgen
 $m(\widehat{BAD}) = m(\widehat{DAC})$
 $|BD| = 4$
 $|AC| = 5$
 $|AB| = x + 4$
 $|DC| = x - 4$
 $x = ?$



- A) 4 B) 5 C) 6 D) 7 E) 9

5.

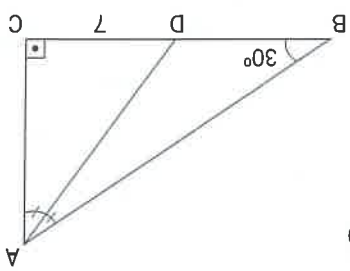
$m(\widehat{BAD}) = m(\widehat{DAC})$
 $|DC| = 7$
 $|BD| = 14$
 $\hat{C}(\widehat{ABC}) = 60^\circ$
 $|AC| = ?$



- A) 12 B) 13 C) 14 D) 15 E) 16

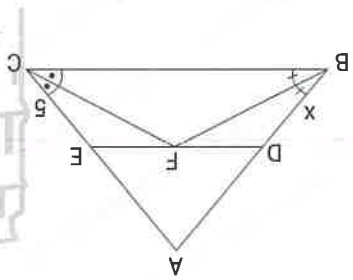
6.

$m(\widehat{BAD}) = m(\widehat{DAC})$
 $[AC] \perp [BC]$
 $m(\widehat{CBA}) = 30^\circ$
 $|CD| = 7$
 $|AC| = ?$

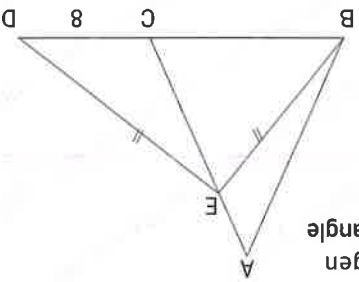


- A) 7 B) $7\sqrt{2}$ C) $7\sqrt{3}$ D) 14 E) $7\sqrt{5}$

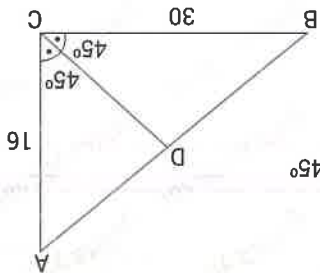
8. $m(\widehat{ABF}) = m(\widehat{FBC})$
 $[DE] \parallel [BC]$
 $m(\widehat{FCA}) = m(\widehat{FCB})$
 $|EC| = 5$
 $|DE| = 9$
 $x = ?$
 A) 3 B) 4 C) 5 D) 6 E) 7



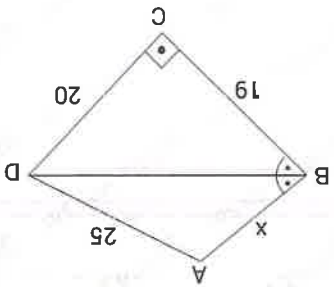
10. ABC; eşkenar üçgen
 $BE = |ED|$
 $|CD| = 8$
 $|EC| = 4$
 $\widehat{C(ABC)} = ?$
 A) 24 B) 28 C) 30 D) 32 E) 36



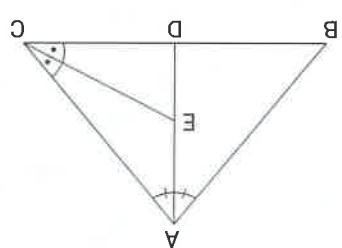
7. ABC bir üçgen
 $m(\widehat{ACD}) = m(\widehat{DCB}) = 45^\circ$
 $|AC| = 16$
 $|BC| = 30$
 $|AD| = ?$
 A) $\frac{23}{20}$ B) $\frac{23}{272}$ C) $\frac{23}{273}$ D) $\frac{23}{274}$ E) $\frac{23}{275}$



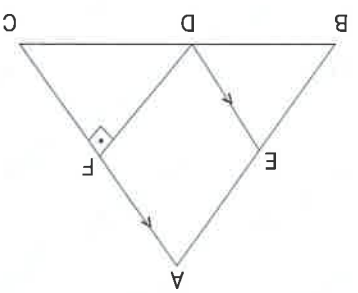
9. $m(\widehat{ABD}) = m(\widehat{DBC})$
 $m(\widehat{BAD}) > 90^\circ$
 $[BC] \perp [CD]$
 $|BC| = 19$
 $|CD| = 20$
 $|AD| = 25$
 $x = ?$
 A) 4 B) 5 C) 6 D) 7 E) 8



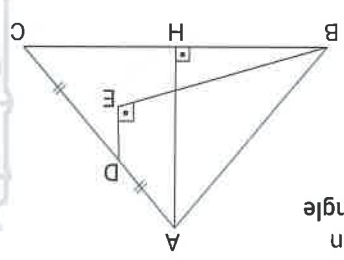
11. $m(\widehat{BAD}) = m(\widehat{DAC})$
 $m(\widehat{ACE}) = m(\widehat{ECB})$
 $|AE| = 2|ED|$
 $|AC| = 20$
 $|BC| = 19$
 $|AB| = ?$
 A) 16 B) 18 C) 20 D) 22 E) 24



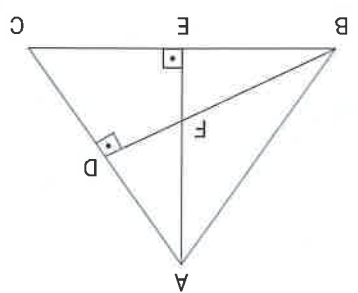
13. $|AB| = |AC|$
 $m(\widehat{BCA}) = 67,5$
 $[DF] \perp [AC]$
 $[DE] \parallel [AC]$
 $|DE| = 4$
 $|DF| = 3\sqrt{2}$
 $|AC| = ?$
 A) 4 B) 6 C) 8 D) 10 E) 12



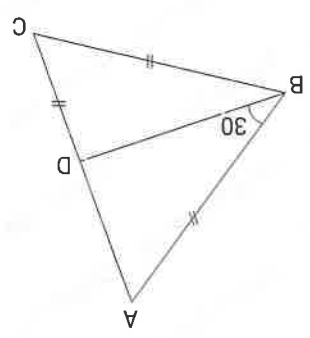
12. ABC eşkenar üçgen
 ABC equilateral triangle
 $[DE] \perp [BE]$
 $[AH] \perp [BC]$
 $|DE| = 9$
 $|AH| = 15$
 $|BE| = ?$
 A) 9 B) 10 C) 12 D) 14 E) 15



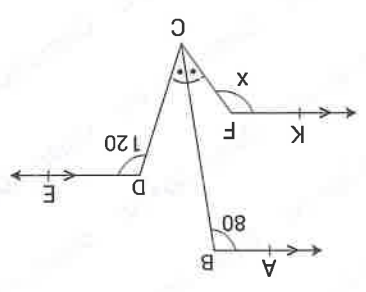
14. $|AC| = |BC|$
 $[BD] \perp [AC]$
 $[AE] \perp [BC]$
 $|BF| = 5$
 $|AD| = 4$
 $|AB| = ?$
 A) 4 B) 5 C) $4\sqrt{5}$ D) $6\sqrt{5}$ E) $8\sqrt{5}$



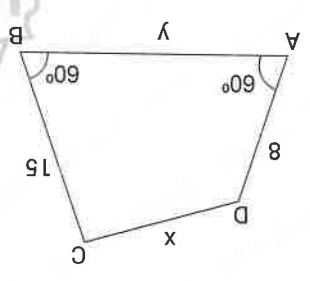
17. ABC bir üçgen
 $|AB| = |CD| = |BC|$
 $m(\widehat{ABD}) = 30^\circ$
 $m(\widehat{BCA}) = ?$
- A) 25 B) 30 C) 35 D) 40 E) 45



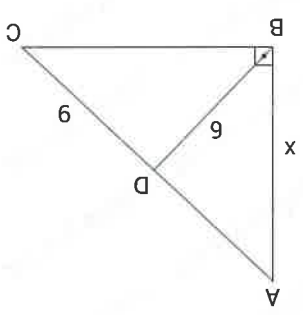
20. $|BA| \parallel |FK| \parallel |DE|$
 $m(\widehat{FCB}) = m(\widehat{BCD})$
 $m(\widehat{ABC}) = 80$
 $m(\widehat{CDE}) = 120$
 $x = ?$
- A) 80 B) 90 C) 100 D) 110 E) 120



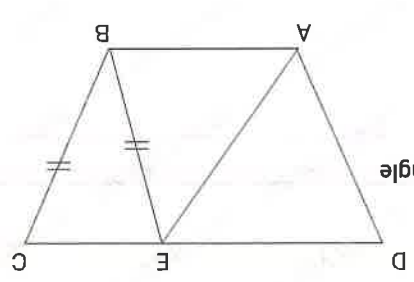
16. $[CD] \perp [BC]$
 $m(\widehat{DAB}) = m(\widehat{ABC}) = 60^\circ$
 $|AD| = 8$
 $|BC| = 15$
 $|CD| = x$
 $|AB| = y$
 $y - x = ?$
- A) $11 - 3\sqrt{3}$ B) $11 + 3\sqrt{3}$ C) $22 - 7\sqrt{3}$ D) $22 - 5\sqrt{3}$ E) $22 - 6\sqrt{3}$



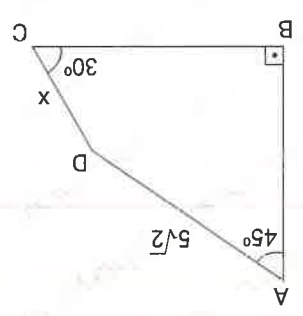
19. $[AB] \perp [BC]$
 $|AC| = 13$
 $|CD| = 9$
 $|BD| = 6$
 $x = ?$
- A) $\sqrt{13}$ B) $2\sqrt{13}$ C) $3\sqrt{13}$ D) $4\sqrt{13}$ E) $5\sqrt{13}$



15. $[AB] \parallel [CD]$
ADE eşkenar üçgen
ADE eşkenar üçgen
 $|BE| = |BC|$
 $\widehat{ADE} = 30^\circ$
 $|EC| = 2\sqrt{5}$
 $|BC| = ?$
- A) $\sqrt{10}$ B) 10 C) 20 D) $2\sqrt{10}$ E) $3\sqrt{10}$



18. $[AB] \perp [BC]$
 $m(\widehat{BCD}) = 30^\circ$
 $m(\widehat{BAD}) = 45^\circ$
 $|AD| = 5\sqrt{2}$
 $|AB| = 12$
 $x = ?$
- A) 10 B) 11 C) 12 D) 13 E) 14



Başarıya Götüren



Mat	Problem 1 Properties	Mat	Circle - Center	Mat	Circle - Center
Geo	Problem 2 Properties	Geo	Circle - Center	Geo	Circle - Center
IQ	Problem 3 Properties	IQ	Circle - Center	IQ	Circle - Center
Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center

Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center
Geo	Circle - Center	Geo	Circle - Center	Geo	Circle - Center
IQ	Circle - Center	IQ	Circle - Center	IQ	Circle - Center
Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center

Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center
Geo	Circle - Center	Geo	Circle - Center	Geo	Circle - Center
IQ	Circle - Center	IQ	Circle - Center	IQ	Circle - Center
Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center

Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center
Geo	Circle - Center	Geo	Circle - Center	Geo	Circle - Center
IQ	Circle - Center	IQ	Circle - Center	IQ	Circle - Center
Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center

Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center
Geo	Circle - Center	Geo	Circle - Center	Geo	Circle - Center
IQ	Circle - Center	IQ	Circle - Center	IQ	Circle - Center
Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center

Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center
Geo	Circle - Center	Geo	Circle - Center	Geo	Circle - Center
IQ	Circle - Center	IQ	Circle - Center	IQ	Circle - Center
Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center

Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center
Geo	Circle - Center	Geo	Circle - Center	Geo	Circle - Center
IQ	Circle - Center	IQ	Circle - Center	IQ	Circle - Center
Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center

Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center
Geo	Circle - Center	Geo	Circle - Center	Geo	Circle - Center
IQ	Circle - Center	IQ	Circle - Center	IQ	Circle - Center
Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center

Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center
Geo	Circle - Center	Geo	Circle - Center	Geo	Circle - Center
IQ	Circle - Center	IQ	Circle - Center	IQ	Circle - Center
Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center

Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center
Geo	Circle - Center	Geo	Circle - Center	Geo	Circle - Center
IQ	Circle - Center	IQ	Circle - Center	IQ	Circle - Center
Mat	Circle - Center	Mat	Circle - Center	Mat	Circle - Center

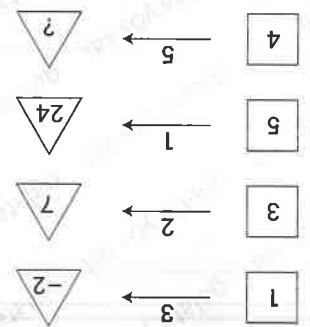
KTS-7

Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers	Mat	Doğal Sayılar / Natural numbers
Geo	Kenarortay / Medium	Geo	Kenarortay / Medium	Geo	Kenarortay / Medium
IQ	Sayı Bağımları/Number Relations	IQ	Sayı Bağımları/Number Relations	IQ	Sayı Bağımları/Number Relations
Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers	Mat	Doğal Sayılar / Natural numbers

Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Basit Eşitsizlik ve Mutlak Değer
Geo	Sayı Bağımları / Number Relations	Geo	Sayı Bağımları / Number Relations	Geo	Sayı Bağımları / Number Relations
IQ	Sayı Bağımları / Number Relations	IQ	Sayı Bağımları / Number Relations	IQ	Sayı Bağımları / Number Relations
Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Basit Eşitsizlik ve Mutlak Değer

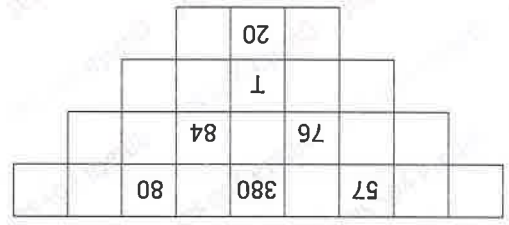
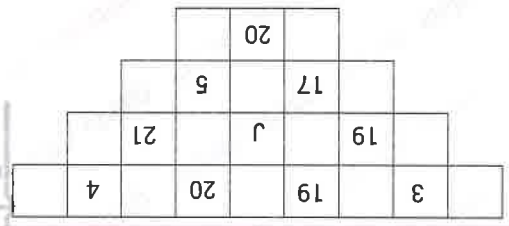
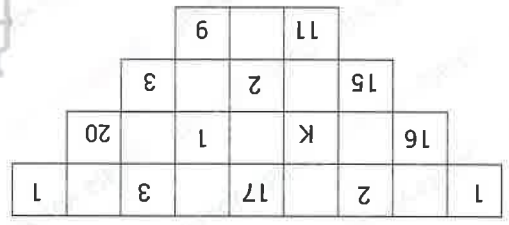
Mat	İşlem Öncesi ve Rasyonel Sayılar	Mat	İşlem Öncesi ve Rasyonel Sayılar	Mat	İşlem Öncesi ve Rasyonel Sayılar
Geo	Şifreler / Passwords	Geo	Şifreler / Passwords	Geo	Şifreler / Passwords
IQ	Şifreler / Passwords	IQ	Şifreler / Passwords	IQ	Şifreler / Passwords
Mat	İşlem Öncesi ve Rasyonel Sayılar	Mat	İşlem Öncesi ve Rasyonel Sayılar	Mat	İşlem Öncesi ve Rasyonel Sayılar

1.



- A) 11 B) 12 C) 13 D) 14 E) 15

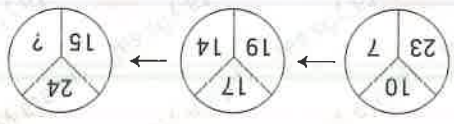
2.



$K+J+T=?$

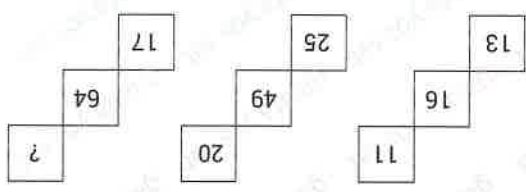
- A) 119 B) 107 C) 92 D) 73 E) 65

3.



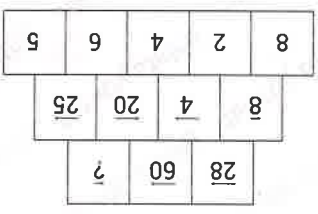
- A) 25 B) 28 C) 32 D) 36 E) 40

4.



- A) 11 B) 17 C) 29 D) 25 E) 31

5.



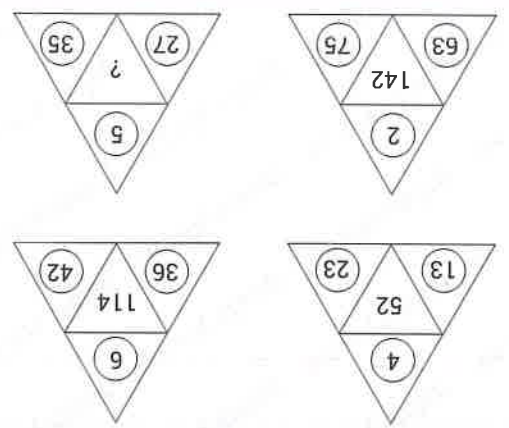
- A) 440 B) 475 C) 480 D) 500 E) 520

14.

64	78	25
57	48	24
76	89	?

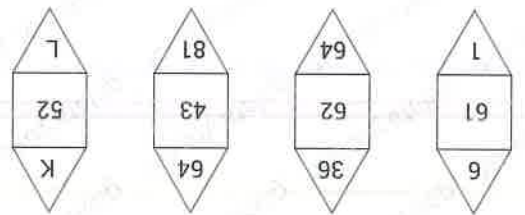
- A) 30 B) 29 C) 28 D) 27 E) 26

13.



- A) 194 B) 153 C) 120 D) 96 E) 87

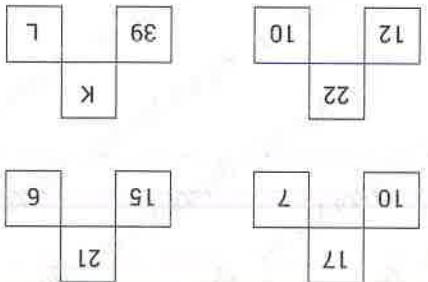
12.



- A) 211 B) 190 C) 135 D) 110 E) 57

$K+L=?$

15.



$K-L=?$

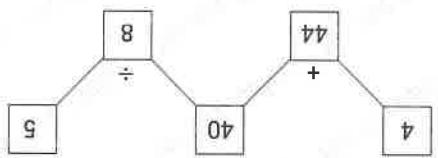
- A) 35 B) 36 C) 37 D) 38 E) 39

16.

2	8	2	9
4	7	5	?
6	8	4	3
3	5	9	4

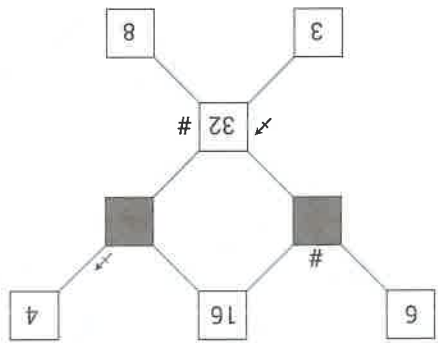
- A) 1 B) 2 C) 3 D) 4 E) 5

Özellik Feature



17 ve 18 sorular yukarıdaki örneğe göre çözülecektir. The 17th and 18th questions will be answered according to the example above.

17.



- A) +
B) -
C) x
D) ÷
E) x
- #

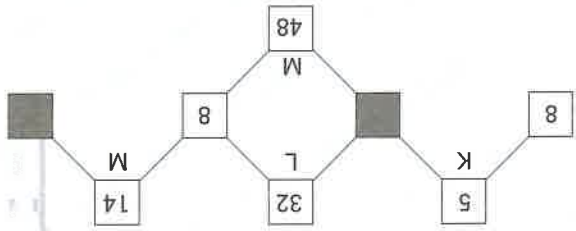
20.

Bir çocuk yürürken 6 adım ileri 4 adım geri adım atarak ilerlemektedir. Buna göre 30 adım ilerlemiş olmak için en az kaç adım atmalıdır ?

While a child is walking, he takes 6 steps forward and 4 steps backward. Accordingly, at least how many steps should he take to be 30 steps forward?

- A) 150 B) 180 C) 126 D) 122 E) 120

18.



- A) x
B) ÷
C) x
D) +
E) x
- $\frac{K}{L}$ $\frac{L}{M}$

Özellik

Feature

21 ve 22 soruları aşağıdaki bilgiye göre cevaplayınız.

Answer questions 21 and 22 according to the following information.

$$8K4L2=10$$

$$5M8N3=37$$

$$2K3M5=17$$

Üstteki eşitlikte kullanılan K, L, M ve N harfleri dört işlem sembollerini temsil etmektedir. [(+), (-), (·), (÷)]

K, L, M and N letters at above equalities represent mathematical operations [(+), (-), (·), (÷)]

$$\Rightarrow 4 \textcircled{1} \textcircled{3} = ?$$

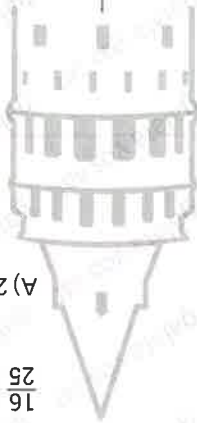
$$23. \quad x \textcircled{+} y = \begin{cases} x^2 + y & x > y \\ xy - 1 & x \leq y \end{cases}$$

- A) 3 B) 6 C) 9 D) 15 E) 18

- A) 3000 B) 10000 C) 10100 D) 10200 E) 10300

1	2	3	4	5	...	100
2	6	12	20	30	...	?

26.



- A) 25 B) 32 C) 56 D) 47 E) 58

- A) 15 B) 16 C) 17 D) 18 E) 19

$$\frac{16}{25} \quad \frac{32}{23} \quad \frac{28}{56} \quad \frac{47}{38} \quad \frac{49}{58}$$

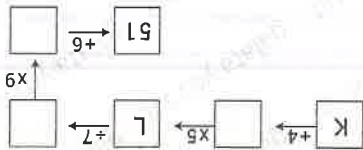
25. Find the number that disrupts the series.

25. Seriyi bozan sayiyi bulunuz ?

22. A=7K3M5 B=21L3K4N8
A-B=?

- A) 35 B) 36 C) 37 D) 38 E) 39

$$K+L=?$$



24.

$$21. \quad 8M4KX=45 \Rightarrow X=?$$

- A) 10 B) 11 C) 12 D) 13 E) 14

E) ESREF

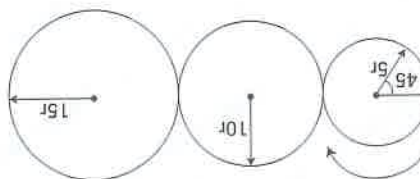
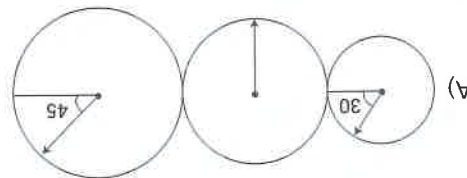
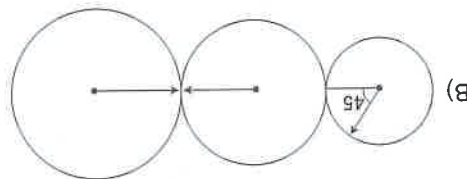
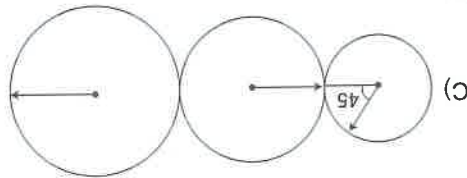
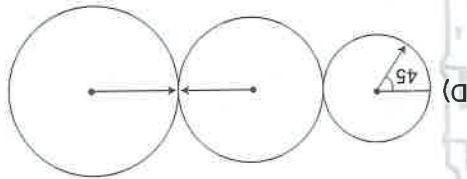
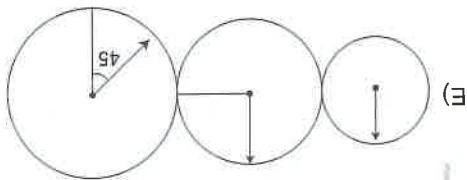
D)ERFSE

B)ERSEF

C)RSEEF

A)SEFER

29. SEFER → EFERS → FERSE → ?



ÇARK / WHEEL

30.

A) 552 B) 666 C) 555 D) 662 E) 660

$$\begin{array}{r} \text{JAA} \\ + \text{AF} \\ \hline \text{AF} \\ \text{AF} \\ \text{AF} \\ \text{AF} \\ \text{AF} \end{array} \Rightarrow \text{AAJ} = ?$$

28.

A) 26 B) 48 C) 56 D) 15 E) 84

$$\begin{array}{l} \square 627 \rightarrow ? \\ \square 526 \rightarrow 256 \square \\ \square 418 \rightarrow 40 \\ \square 326 \rightarrow 236 \end{array}$$

27.

$$\begin{array}{r} (323)_5 \\ + (44)_5 \\ \hline ? \end{array}$$

9.

- A) $(367)_5$
 B) $(322)_5$
 C) $(422)_5$
 D) $(312)_5$
 E) $(412)_5$

$$10. (34,2)_5 = (?)_{10}$$

- A) 16,4
 B) 19,4
 C) 34,2
 D) 16,25
 E) 19,50

$$11. (100101101)_2 = (x)_8 = x = ?$$

- A) 572
 B) 455
 C) 376
 D) 354
 E) 264
 A) 6
 B) 8
 C) 9
 D) 10
 E) 11

$$14. \begin{cases} 2^a = 9 \\ 3^b = 16 \end{cases} \Rightarrow a \cdot b = ?$$

$$15. \begin{cases} 3^{x-2} = 1 \\ 5^{y+2} = 5 \\ \Rightarrow x \cdot y = ? \end{cases}$$

- A) 12
 B) 0
 C) -1
 D) -2
 E) -3

12. 1 den 120 ye kadar doğal sayılar art arda yazılarak natural numbers from 1 to 120 are written consecutively, creating the number A.
 $A = 1\ 2\ 3\ 4\ 5\ 6\ 7\ 8\ 9\ 10\ \dots\ 119\ 120$
 sayısı oluşturuluyor.
 Buna göre, A kaç basamaklıdır?
 accordingly, how many digits is A?
 A) 251
 B) 252
 C) 253
 D) 254
 E) 255

$$13. \begin{aligned} 1^2 &= 1 \\ 2^2 &= 1+3 \\ 3^2 &= 1+3+5 \\ 4^2 &= 1+3+5+7 \\ &\vdots \\ x^2 &= 1+3+5+\dots+47 \\ \Rightarrow x &= ? \end{aligned}$$

- A) 20
 B) 21
 C) 22
 D) 23
 E) 24

1. Sıra \ Row	1	2	3	4	5
2. Sıra \ Row	6	7	8	9	10
3. Sıra \ Row	11	12	13	14	15
⋮					
11. Sıra \ Row	a	b	c	d	e

16.

$$\Rightarrow a+b+c+d+e=?$$

- A) 260 B) 265 C) 275 D) 285 E) 290

$$\Rightarrow a-b=?$$

$$b=1-\frac{6}{1}$$

$$17. a=\frac{2}{1}+\frac{3}{1}$$

A) 0

B) 1

C) 2

D) $\frac{1}{6}$ E) $\frac{6}{5}$

18. $\sqrt{3}x+2=2x-\sqrt{3}$ eşitliğini sağlayan x değeri $a+b\sqrt{3}$

olduğuna göre $a+b$ kaçtır ?

what is $a+b$ since $a+b\sqrt{3}$ which ensures $\sqrt{3}+2=2x-\sqrt{3}$ equality?

A) 7

B) 10

C) 11

D) 12

E) 13

21.

a, b ardışık tam sayıdır.

a, b are consecutive integers.

$$a < \sqrt{159} < b \Rightarrow a+b=?$$

A) 23

B) 24

C) 25

D) 27

E) 29

20.

$$2^{10}-2^9-2^8-2^7-2^6-2^5-2^4-2^3-2^2-2^1-2^0=?$$

A) 1

B) 2

C) 3

D) 4

E) 5

19.

$$2^a=3, 3^b=4, \Rightarrow 7^{ab}=?$$

A) 49

B) 35

C) 28

D) 27

E) 21

22. $\sqrt[3]{x} = \frac{2}{1} \Rightarrow \sqrt{\frac{x}{x+1}} = ?$

- A) 3
- B) $\frac{2}{5}$
- C) 2
- D) $\frac{2}{3}$
- E) 1

25. $x \in \mathbb{Z}$
 $2 < |x+3| \leq 4 \Rightarrow \sum x = ?$

- A) -15
- B) -13
- C) -12
- D) -7
- E) -6

23. $x = \sqrt[3]{5}$ ve $y = \sqrt[3]{2}$ $\Rightarrow (x+y)(x^2-xy+y^2) = ?$

- A) 3
- B) 4
- C) 5
- D) 6
- E) 7

26. $|3x-4| > 5 \Rightarrow S.S = ?$

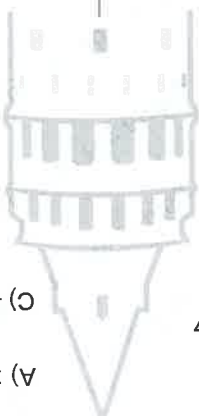
- A) $x < -3$ veya $x > \frac{1}{3}$
- B) $x < -\frac{3}{1}$ veya $x > 3$
- C) $-3 < x < \frac{3}{1}$
- D) $-\frac{3}{1} < x < 3$
- E) $x > -3$

24. $|x+2x| = -2 \Rightarrow x^3 - x + 1 = ?$

- A) -11
- B) -9
- C) -5
- D) 3
- E) 7

27. $-2 < x < 3$ ve $-6 < x+y < 9 \Rightarrow y = ?$

- A) $-4 < y < 6$
- B) $-8 < y < 6$
- C) $-9 < y < 7$
- D) $-3 < y < 7$
- E) $-9 < y < 11$

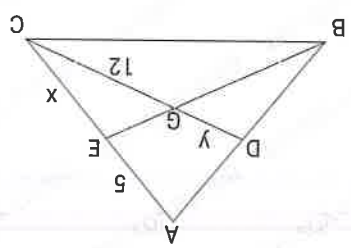


28. $\frac{1}{n} < \frac{24}{4}$

olduğuna göre, n tam sayıları kaç tane dir ?
 accordingly, how many are n integers ?

- A) 1 B) 2 C) 3 D) 4 E) 5

1. G: ağırlık merkezi
 G: center of gravity



$|AG| = 5$
 $|GD| = 12$
 $|GE| = x$
 $|GF| = y$
 $|GC| = 12$

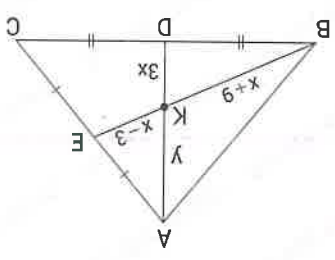
- A) 1 B) 2 C) 3 D) 4 E) 5

29. $|x-y| = 3 \Rightarrow \min(3x-3y+|2y-2x|) = ?$

- A) -12 B) -9 C) -6 D) -3 E) 3

2. ABC bir üçgen
 ABC triangle

$|AE| = |EC|$
 $|BD| = |DC|$
 $|AK| = y$
 $|KD| = 3x$
 $\frac{y}{x} = ?$

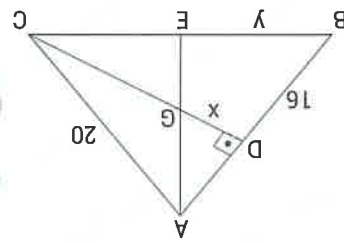


- A) 2 B) 3 C) 4 D) 5 E) 6

30. $x \in \mathbb{R}$
 $|x-5| + |9-x| = 5$
 $\Rightarrow \sum x = ?$

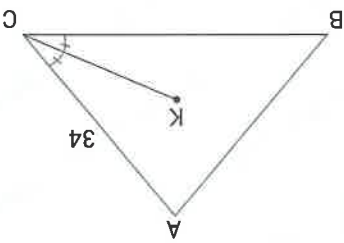
- A) 13 B) 14 C) 15 D) 16 E) 17

4. G: ağırlık merkezi
 center of gravity
 $[CD] \perp [AB]$
 $|BD| = 16$
 $|AC| = 20$
 $|DG| = x$
 $|BE| = y$
 $x + y = ?$



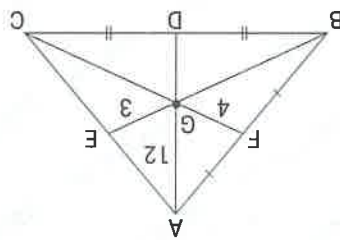
- A) 12 B) 13 C) 14 D) 15 E) 16

6. K: ağırlık merkezi
 center of gravity
 $m(\widehat{ACK}) = m(\widehat{KCB})$
 $|AC| = 34$
 $|AB| = 32$
 $|KC| = ?$



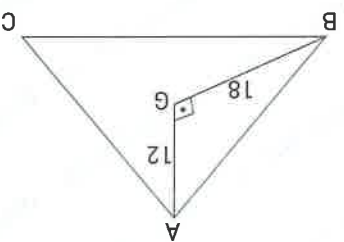
- A) 12 B) 14 C) 16 D) 18 E) 20

3. ABC bir üçgen
 ABC triangle
 $|BD| = |DC|$
 $|AF| = |FB|$
 $|GE| = 3$
 $|FG| = 4$
 $|AG| = 12$
 $V_a + V_b + V_c = ?$



- A) 28 B) 29 C) 30 D) 34 E) 39

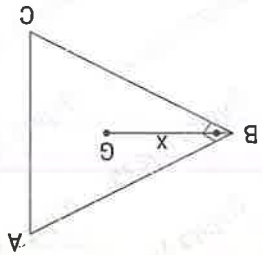
5. G: ağırlık merkezi
 center of gravity
 $[AG] \perp [BG]$
 $|AG| = 12$
 $|BG| = 18$
 $|AC| = ?$



- A) 24 B) 25 C) 27 D) 30 E) 32

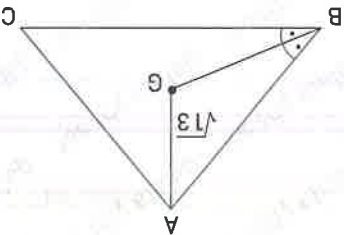
5.

7. G: ağırlık merkezi
 $[AB] \perp [BC]$
 $|AC| = 24$
 $|BG| = x = ?$



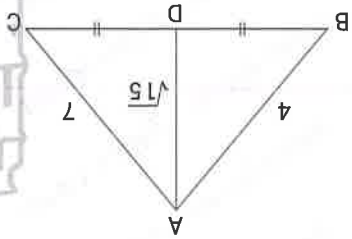
- A) 7 B) 8 C) 9 D) 10 E) 11

9. $m(\widehat{ABG}) = m(\widehat{GBC})$
 $|AG| = \sqrt{13}$
 $|AC| = 6$
 G: ağırlık merkezi
 center of gravity
 $|BC| = ?$



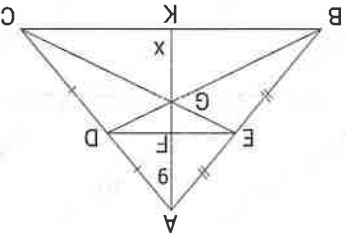
- A) $2\sqrt{5}$ B) $3\sqrt{5}$ C) $4\sqrt{5}$ D) $5\sqrt{5}$ E) $6\sqrt{5}$

8. $|BD| = |DC|$
 $|AD| = \sqrt{15}$
 $|AB| = 4$
 $|AC| = 7$
 $|BC| = ?$



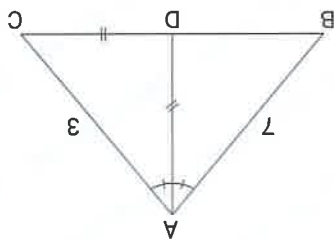
- A) $\sqrt{35}$ B) $\sqrt{39}$ C) $\sqrt{65}$ D) $\sqrt{70}$ E) $\sqrt{71}$

10. ABC bir üçgen
 $|AD| = |DC|$
 $|AE| = |EB|$
 $|AF| = 9$
 $|GK| = ?$

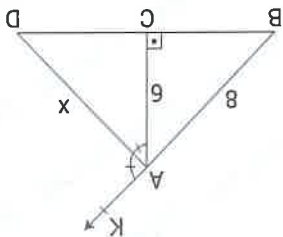


- A) 5 B) 6 C) 7 D) 8 E) 9

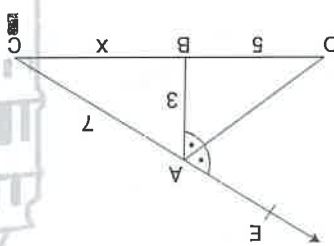
11. ABC bir üçgen
ABC triangle
 $m(\widehat{BAD}) = m(\widehat{DAC})$
 $|AD| = |DC|$
 $|AC| = 3$
 $|AB| = 7$
 $|DC| = ?$



- A) $2\sqrt{7}$
B) $3\sqrt{5}$
C) $3\sqrt{6}$
D) $3\sqrt{7}$
E) $\frac{3\sqrt{8}}{\sqrt{10}}$
13. $m(\widehat{CAD}) = m(\widehat{DAK})$
 $[AC] \perp [BD]$
 $|AC| = 6$
 $|AB| = 8$
 $|AD| = x = ?$
- A) $8\sqrt{2}$
B) $9\sqrt{2}$
C) $10\sqrt{2}$
D) $11\sqrt{2}$
E) $12\sqrt{2}$

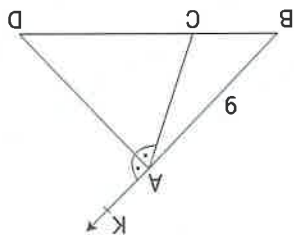


12. ADC bir üçgen
ABC triangle
 $m(\widehat{EAD}) = m(\widehat{DAB})$
 $|AB| = 3$
 $|DB| = 5$
 $|AC| = 7$
 $x = ?$



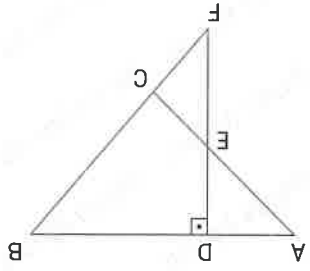
- A) 4
B) 5
C) 6
D) $\frac{3}{20}$
E) 7

14. ABC bir üçgen
ABC triangle
 $m(\widehat{CAD}) = m(\widehat{DAK})$
 $|CD| = 2|BC|$
 $|AB| = 9$
 $|AC| = ?$



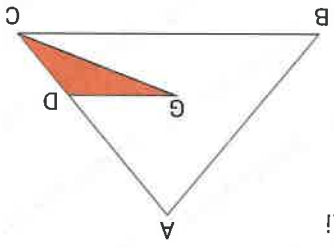
- A) 5
B) 6
C) 7
D) 8
E) 9

17. [DF] ⊥ [AB]
 |AC| = |BC|
 |AE| = 5
 |BF| = 15
 |CF| = x = ?



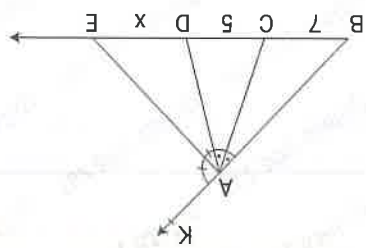
- A) 4 B) 5 C) 6 D) 7 E) 8

16. G: ağırlık merkezi
 center of gravity
 |AD| = 3|DC|
 $m(\widehat{ABC}) = 48^\circ$
 $m(\widehat{ADC}) = ?$



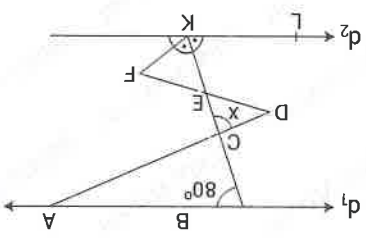
- A) 1 B) 2 C) 3 D) 4 E) 5

15. $m(\widehat{BAC}) = m(\widehat{CAD})$
 $m(\widehat{DAE}) = m(\widehat{EAK})$
 |CD| = 5
 |BC| = 7
 x = ?



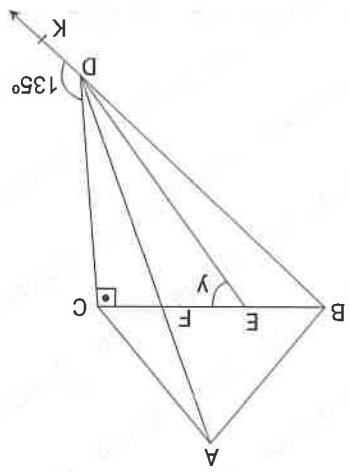
- A) 12 B) 15 C) 20 D) 25 E) 30

20. $d_1 \parallel d_2$
 [AD] // [KF]
 $m(\widehat{FKE}) = m(\widehat{EKL})$
 $m(\widehat{ABK}) = 80^\circ$
 $m(\widehat{DCE}) = x = ?$



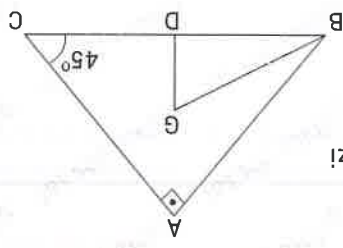
- A) 50 B) 60 C) 70 D) 80 E) 100

19. [BC] ⊥ [CD]
 |AB| = |AC| = |BC|
 $m(\widehat{CDK}) = 135^\circ$
 $m(\widehat{EDA}) = 5 m(\widehat{BDE})$
 y = ?



- A) 45 B) 50 C) 55 D) 58 E) 60

18. [AB] ⊥ [AC]
 $m(\widehat{ACB}) = 45^\circ$
 G: ağırlık merkezi
 center of gravity
 |BD| = |DC|
 $|GD| = 3\sqrt{2}$
 $|BG| = ?$



- A) $3\sqrt{2}$ B) $6\sqrt{2}$ C) $6\sqrt{3}$ D) $6\sqrt{5}$ E) $9\sqrt{5}$

1.

+	b	b
b	7	
b		12

$b - 3q = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

2.

x	a	b	c
a		24	
b	20		30
c			

$a > 0 \quad b > 0 \quad c > 0$
 $a \cdot b \cdot c = ?$

- A) 120 B) 130 C) 140 D) 150 E) 160

3.

+	p	q	r
p			
q	12-r	10	
r			2p-4

$2p + q \cdot r = ?$

- A) 28 B) 30 C) 32 D) 36 E) 40

4.

x	a	a	b	c
a				
b	9c			
c	16a			

$b = ?$

- A) 10 B) 12 C) 14 D) 16 E) 18

5.

x	k	l	m
k			25l
l	m		
m	36k		

$k, l, m > 0$
 $k + l + m = ?$

- A) 39 B) 40 C) 41 D) 42 E) 43

6.

+	k	m
k		
m	13	

x	k	m
k		40
m		

$(k-m)^2 = ?$

- A) 1 B) 4 C) 9 D) 16 E) 25

7.

$$2x = ?$$

+	2^x	2^y
	2^x	2^y
	2^x	64
	2^y	2^y

- A) 1 B) 2 C) 3 D) 4 E) 5

8.

$$(b-a)^2 = ?$$

+	3^a	3^b
	3^a	$6 \cdot 3^a$
	3^a	3^b
	x	3^a
	243	3^b

- A) 1 B) 4 C) 9 D) 16 E) 25

9.

$$\frac{K+M}{L} = ?$$

+	A	B
	7A	
	A	B
	B	
	9A	

x	A	B
	A	K
	B	L
	C	

- A) $\frac{64}{37}$ B) $\frac{36}{65}$ C) $\frac{64}{35}$ D) 4 E) 6

10.

$$b = ?$$

+	a	b	c
	a	b	15
	b		24

x	a	b	c
	a		136

- A) 3 B) 5 C) 6 D) 7 E) 8

11.

$$(b \cdot d) + (b \cdot c) = ?$$

+	c	d
	b	15
	b	15

x	c	d
	b	42
	b	72

- A) 63 B) 76 C) 85 D) 96 E) 110

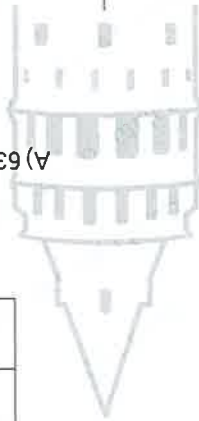
12.

$$K^3 - L^3 = ?$$

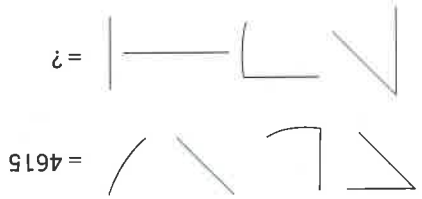
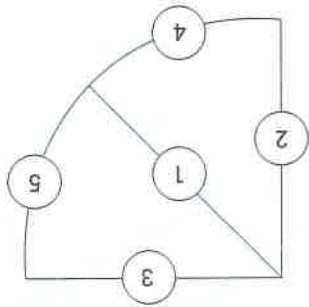
-	K	L
	K	5
	L	

x	K	L
	K	5
	L	

- A) 120 B) 140 C) 160 D) 180 E) 200



19.



A) 3832 B) 5563 C) 4789 D) 3721 E) 6685

$$20. x * y = \begin{cases} x \cdot y - x & x < y \\ x \cdot y - y & y \leq x \end{cases} \quad (3 * 4) * 5 = ?$$

A) 44 B) 43 C) 42 D) 41 E) 40

A) 3227 B) 2813 C) 1212 D) 1217 E) 903

21. 33 24 = 118

45 21 = 157

93 18 = 316

84 39 = ?

A)

6	5	4
9	12	8
10	7	11

B)

6	7	4
5	12	8
4	5	11

C)

1	2	3
4	5	7
9	11	13

D)

3	2	1
6	9	5
7	4	8

E)

9	8	7
12	15	11
13	10	14

22.

Yukarıda yapılan işlem

4	6	8
5	7	9
10	11	12

12	5	10
6	7	11
8	9	4

9	2	7
3	4	8
5	6	1

Kutusuna uygun olduğunda II. işlemden sonra elde edilen kutu aşağıdakilerden hangisidir ?

Consider the above two operations. If these operations are applied to the following box what is the box after the operation II.

23. $(8 \times 4) \div 7 = 14$
 $(9 \div 2) \times 3 = 8$
 $(21 \div 9) \times 6 = 2$
 $(8 \div 4) \div 3 = ?$

A) 40 B) 37 C) 35 D) 27 E) 21

26. $(k \leftrightarrow q) \leftrightarrow q = x \Rightarrow k = ?$

A) p B) q C) r D) w E) x

24. 19 20 22 25 x 34 y 47 55
 $\Rightarrow x + y = ?$

A) 63 B) 66 C) 69 D) 72 E) 75

Özellik Feature

x	↕	p	q	r	w	x
p	p	q	r	w	x	x
x	p	r	w	x	p	p
q	r	r	r	w	x	p
r	w	w	x	p	p	q
w	w	x	p	p	q	r
x	x	p	q	r	w	x

25 - 26. soruları yukarıdaki tabloya göre cevaplayınız?
 Answer the questions 25 - 26 according to the table below ?

Bir işçi dikörtgen şeklindeki bir levhayı şekil I. deki gibi 5 eşit parçaya 20 dakikada bölmektedir. Bu işçi aynı levhayı şekil II. deki gibi 7 eşit parçaya kaç dakika-
 da böler ?
 A worker cuts a rectangle plate into 5 equal pieces as in figure I with a saw in 20 minutes how many minutes does it take for the same worker to cut the same plate into 7 equal pieces as in figure II ?



A) 23 B) 25 C) 28 D) 30 E) 35

1. a bir tam sayı ve $a^5 + 2a$ tek sayı ise, aşağıdakilerden hangisi çifttir ?
 If a is an integer and $a^5 + 2a$ is an odd number, which of the following is even ?

- A) $a(a+3)$ B) $a(a+2)$ C) $4-a$
 D) $a^3 + a^2 - 1$ E) $a^2 + a + 1$

28. $\begin{array}{c} 4 \\ \uparrow \\ 61 \end{array}$ $\begin{array}{c} 7 \\ \uparrow \\ 82 \end{array}$ $\begin{array}{c} 12 \\ \uparrow \\ 84 \end{array}$ $\begin{array}{c} ? \\ \uparrow \\ 86 \end{array}$
 A) 17 B) 13 C) 12 D) 11 E) 10

2. 1 ile 50 sayıları arasında kaç tane asal sayı vardır ?
 how many prime numbers are there between the numbers 1 and 50?

- A) 11 B) 12 C) 13 D) 14 E) 15

29. Yukarıdaki sayı dizisine göre A kaçtır ?
 According to the number sequence, what is the value of A ?

- A) $\frac{+K}{+K}$ B) $\frac{-K}{-K}$ C) $\frac{16}{16}$ D) $\frac{105}{105}$

- A) 5 B) 6 C) 7 D) 8 E) 9

30. Başlangıç sayısı $X = 9$, katsayısı $K = 5$ olan sayı dizisinin de, iki toplama ve iki çarpma işlemi yapıldığına göre, dizinin son (beşinci) terimi en çok kaç olabilir ?
 Starting with $X=9$ and $K=5$ one performs two addition and two multiplication. What is the largest possible value of last (fifth) term of the sequence ?

- A) 190 B) 195 C) 200 D) 210 E) 220

- A) 400 B) 425 C) 450 D) 475 E) 500

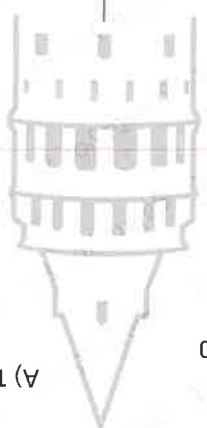
3. $1 + 2 + 3 + \dots + 20 = ?$

6. $\frac{7i-6i}{5i+4i} = ?$

- A) 15 B) 20 C) 30 D) 42 E) 60

9. $A, x, y, z \in \mathbb{Z}^+$
 $A = 4 \cdot x + 2 = 9y - 2 = 24 \cdot z + 22$
 $\Rightarrow \min(A) = ?$

- A) 66 B) 70 C) 74 D) 78 E) 82



5. $\frac{1}{2} + \frac{3}{3} + 1 + \frac{4}{3} + \frac{5}{3} + 2 + \dots + 20 = ?$

- A) 610 B) 605 C) 600 D) 590 E) 580

8. $8i = 2^a \cdot 3^b \cdot 7^c \cdot k \Rightarrow a+b+c = ?$

- A) 11 B) 10 C) 9 D) 8 E) 7

4. $1-2+3-4+\dots+59-60$

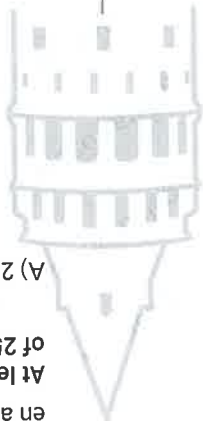
- A) -30 B) -29 C) -28 D) -27 E) -26

7. $101! - 1$ sayısının sondan kaç basamağı 9 dur ?
 A) 20 B) 10 C) 22 D) 23 E) 24

How many digits from the last digits of $101-1$ number are 9?

13. a ve b pozitif tam sayılar olmak üzere $\frac{6}{a} = \frac{5}{b}$ ve $\text{OBEB}(a,b) = 10$ olduğuna göre, $\text{OKEK}(a,b) = ?$
 a ve b are positive integers $\frac{6}{a} = \frac{5}{b}$ and $\text{GCD}(a,b) = 10$
 what is $\text{LCM}(a,b)$
- A) 30 B) 60 C) 100 D) 150 E) 300

14. Kenar uzunlukları 25 ve 40 cm olan dikdörtgenlerin en az kaç tanesi bir kare oluşturmur?
 At least how many of the rectangles with edge lengths of 25 and 40 cm make up a square?
- A) 20 B) 25 C) 30 D) 35 E) 40



15. Boyutları 132, 198, 330 birim olan dikdörtgenler prizması şeklindeki kutu eşit hacimli küplerle doldurulacaktır. Buna göre, bu kutu en az kaç tane küp ile doldurulur?
 The box in the form of rectangular prisms, whose dimensions are 132, 198, 330 units, shall be filled with cubes of equal volume.
 Accordingly, how many cubes are filled in this box?
- A) 34 B) 30 C) 26 D) 22 E) 18

10. $a, b \in \mathbb{Z}^+$
 $18 \cdot a = b^2 \Rightarrow \min(b) = ?$
- A) 5 B) 6 C) 7 D) 8 E) 9

11. $x, y \in \mathbb{N}^+$
 $18x + 19y = 2^x \cdot x \Rightarrow \max(y) = ?$
- A) 14 B) 16 C) 18 D) 20 E) 22

12. $x \in \mathbb{Z}$
 $\frac{120}{x} \in \mathbb{Z}$, $\frac{x}{132} \in \mathbb{Z} \Rightarrow \max(x) = ?$
- A) 6 B) 12 C) 18 D) 24 E) 30

$$16. \frac{2009}{14} - \frac{2006}{13} - \frac{1}{12} = ?$$

- A) $\frac{5}{3}$ B) $\frac{5}{7}$ C) $\frac{5}{8}$ D) $\frac{5}{13}$ E) $\frac{5}{13}$

19. $-2 < x < 7$ olduğuna göre,
Since it's $-2 < x < 7$
 $x^2 + 2x - 7$ ' ifadesinin en büyük tam sayı değeri kaçtır?
what is the maximum integer value of the expression?

- A) 55 B) 53 C) 27 D) 21 E) 17

$$17. \frac{x+4}{4-x} + \frac{3-x}{3-x} = \frac{3}{4} \Rightarrow x = ?$$

- A) 12 B) 9 C) -4 D) -6 E) -12

$$20. x < y < 0 < z \text{ olmak üzere}$$

$$\left| \frac{z}{1} - \frac{y}{1} + \frac{x}{1} \right| - \left| \frac{x}{1} - \frac{z}{1} \right| = ?$$

- A) $\frac{1}{1} - \frac{x}{y}$ B) $\frac{y}{1} - \frac{z}{1}$
C) $\frac{x}{1} + \frac{y}{1}$ D) $\frac{x}{1} + \frac{y}{1} - \frac{z}{1}$
E) $2 \left(\frac{x}{1} - \frac{y}{1} \right)$

$$18. (x+2y-10)^4 + (2x-y-5)^6 + (3m+n-19)^8 + \sqrt[8]{m-n-1} = 0$$

$$\Rightarrow n+y = ?$$

- A) -3 B) -4 C) 5 D) 7 E) 10

$$21. |x-2| + |6-3x| - |4-2x| = 8 \text{ ise } |x| = ?$$

- A) -4 B) -12 C) 7 D) 9 E) 13

22. Aşağıdakilerden hangisi yanlıştır ?
which of the following is false ?

- A) $(2^{-2})^{-1} = 4$
 B) $\left(\frac{5}{3}\right)^{-1} = \frac{3}{5}$
 C) $(-2^2)^{-1} = \frac{4}{1}$
 D) $(-3^{-2})^{-1} = -9$
 E) $(-3^3)^{-5} = (-3^{-5})^3$

- A) $y < x < z$
 B) $x < z < y$
 C) $x > y < z$
 D) $z > y < x$
 E) $z > x > y$

25. $x = \sqrt{3} + \sqrt{5}$
 $y = \sqrt{12} + \sqrt{6}$
 $z = \sqrt{10} + 8$
 olduğuna göre aşağıdaki sıralamalardan hangisi doğrudur?
 Accordingly, which of the following rankings is true?

23. $5 - 5^x + 3^x \cdot 5^{x+1} = \frac{75}{15^{-x}}$
 $= x = ?$

- A) 1
 B) 2
 C) 3
 D) 4
 E) 5

26. $\frac{x^4 + x^2 - 1}{x^2 - x - 1} \cdot \frac{x^2 - x + 1}{x^2 - 1} = ?$

- A) x
 B) $\frac{x-1}{1}$
 C) $x+1$
 D) $\frac{x-1}{x+1}$
 E) $\frac{1}{x+1}$

24. $\sqrt{\sqrt{78 + \sqrt{\sqrt{10 - 1}} \cdot \sqrt{11 + 2\sqrt{10}}}} = ?$

- A) 3
 B) 5
 C) 7
 D) 9
 E) 11

27. $\frac{ABC}{D6D} + \frac{CBA}{D6D} = (B+D) - (A+C) = ?$

- A) 0
 B) 1
 C) 2
 D) 3
 E) 4

30. $(213)^x + (x2)^5 = ?$

- A) 63
- B) 62
- C) 61
- D) 60
- E) 59

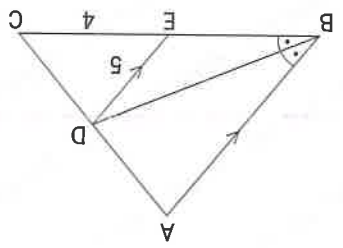
29. $(45)^7 + \frac{(a)^7}{(32)^7} = a = ?$

- A) 2033
- B) 1233
- C) 2133
- D) 112
- E) 110

28. $7 \cdot 9^3 + 5 \cdot 3^5 + 2 \cdot 9 + 8 = (a)^3 \Rightarrow a = ?$

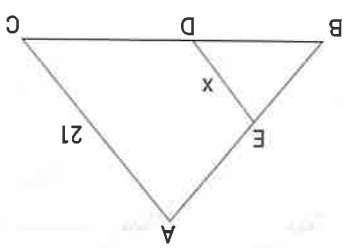
- A) 22022
- B) 1220122
- C) 2202200
- D) 2220222
- E) 10220101

- A) $\frac{4}{45}$
- B) $\frac{45}{2}$
- C) 45
- D) 35
- E) 30



2. $[AB] \parallel [DE]$
 $m(\widehat{ABD}) = m(\widehat{DBE})$
 $|EC| = 4$
 $|DE| = 5$
 $|AB| = ?$

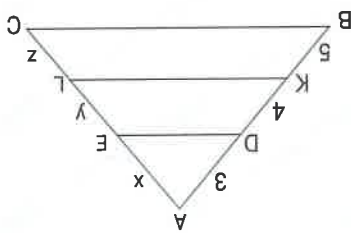
- A) 4
- B) 5
- C) 6
- D) 7
- E) 8



1. ABC bir üçgen
 $[DE] \parallel [AC]$
 $|AE| = 2$
 $|EB| = x$
 $|AC| = 21$
 $|DE| = x = ?$

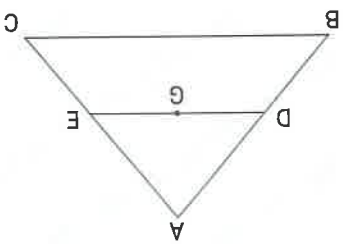
3.

- ABC bir üçgen
 ABD triangle
 $[DE] // [KL] // [BC]$
 $|AD| = 3$
 $|KD| = 4$
 $|BK| = 5$
 $\frac{x+z}{y} = ?$
 A) 1 B) 2 C) 3 D) 4 E) 5



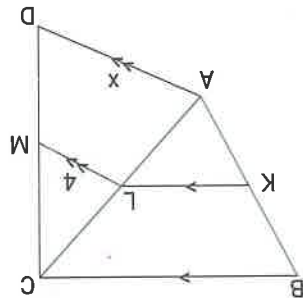
5.

- ABC bir üçgen
 ABD triangle
 $[DE] // [BC]$
 G: ağırlık merkezi!
 center of gravity
 $|BC| = 9$
 $|DE| = ?$
 A) 6 B) 7 C) 8 D) 9 E) 10



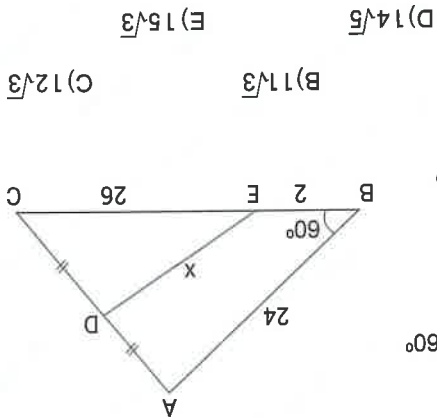
4.

- ABC bir üçgen
 ABD triangle
 $[KL] // [BC]$
 $[LM] // [AD]$
 $|BK| = 2|AK|$
 $x = ?$



- A) 3 B) 4 C) 5 D) 6 E) 8

- $|AD| = |DC|$
 $m(\angle ABC) = 60^\circ$
 $|BE| = 2$
 $|AB| = 24$
 $|EC| = 26$
 $|DE| = x = ?$

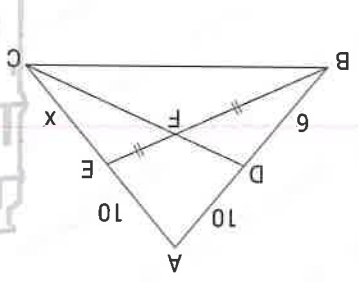


- A) $10\sqrt{3}$ B) $11\sqrt{3}$ C) $12\sqrt{3}$ D) $14\sqrt{5}$ E) $15\sqrt{3}$

KTS 8

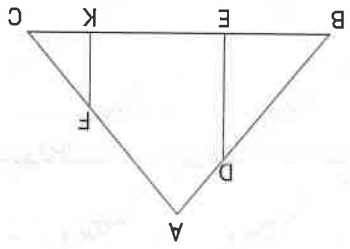
YÖS

8. ABC bir üçgen
 $|BF| = |FE|$
 $|AD| = |AE| = 10$
 $|BD| = 6$
 $|EC| = x = ?$



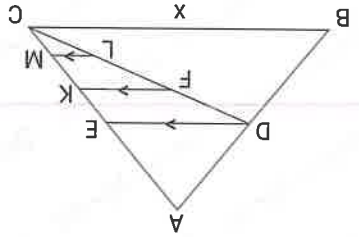
- A) 6 B) 10 C) 12 D) 15 E) 16

7. ABC bir üçgen
 $|DE| \parallel |FK|$
 $|BD| = 4|AD|$
 $2|AF| = 3|FC|$
 $\frac{|DE|}{|FK|} = ?$



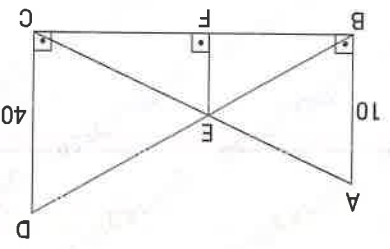
- A) $\frac{1}{2}$ B) 1 C) 2 D) 3 E) 4

10. ABC bir üçgen
 $[DE] \parallel [FK] \parallel [LM]$
 $|AE| = |MC| = 3|KM|$
 $|EK| = 2|KM|$
 $|FK| = 8$
 $|BC| = x = ?$



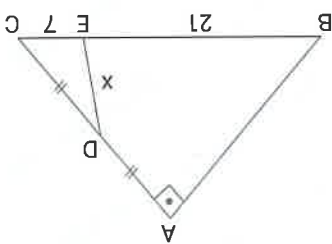
- A) 30 B) 32 C) 34 D) 36 E) 38

9. $[EF] \perp [BC]$
 $|AB| = 10$
 $|CD| = 40$
 $|BC| = 50$
 $|EF| = ?$



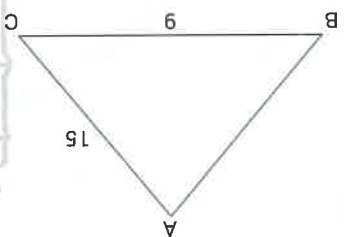
- A) 8 B) 9 C) 10 D) 12 E) 14

11. ABC bir üçgen
 ABD triangle
 $[AB] \perp [AC]$
 $|AD| = |DC|$
 $|EC| = 7$
 $|BE| = 21$
 $|DE| = x = ?$



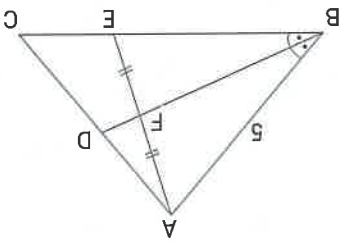
- A) 7 B) 8 C) 9 D) 10 E) 12

12. $m(\widehat{BCA}) = 2 m(\widehat{BAC})$
 $|BC| = 9$
 $|AC| = 15$
 $|AB| = ?$



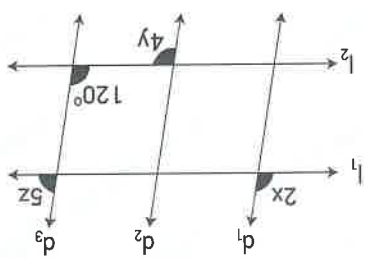
- A) $2\sqrt{6}$ B) $3\sqrt{6}$ C) $4\sqrt{6}$ D) $5\sqrt{6}$ E) $6\sqrt{6}$

14. $|AF| = |FE|$
 $m(\widehat{ABD}) = m(\widehat{DBC})$
 $|DC| = 2|AD|$
 $|BE| = ?$
 $|EC| = ?$



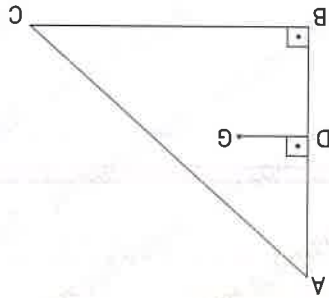
- A) 7 B) 6 C) 5 D) 3 E) 1

13. $d_1 // d_2 // d_3$
 $l_1 // l_2$
 $x + y - z = ?$



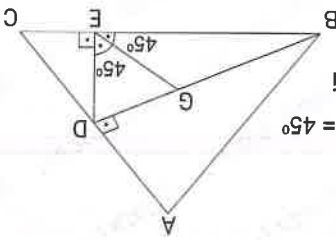
- A) 75 B) 76 C) 78 D) 80 E) 90

15. [AB] ⊥ [BC]
[AB] ⊥ [GD]
G: ağırlık merkezi
|DG| = 5
|BC| = ?
A) 5 B) 10 C) 15 D) 20 E) 25



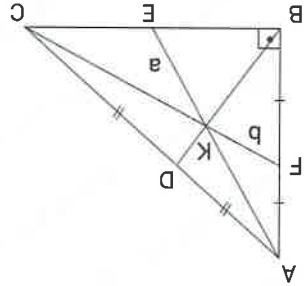
- A) 5 B) 10 C) 15 D) 20 E) 25

18. [BD] ⊥ [AC]
[DE] ⊥ [BC]
 $m(\widehat{DEG}) = m(\widehat{GEB}) = 45^\circ$
G: ağırlık merkezi
center of gravity
|DE| = 8
|AB| = ?
A) 8 B) 9 C) 10 D) 20 E) 24



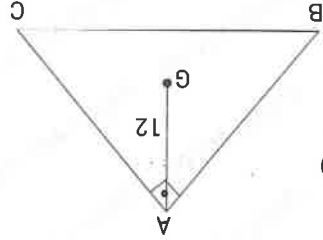
- A) 8 B) 9 C) 10 D) 20 E) 24

16. [AB] ⊥ [BC]
|AD| = |DC|
|KE| = a
|FK| = b
|BD| = $3\sqrt{3}$
 $a^2 + b^2 = ?$
A) 12 B) 13 C) 14 D) 15 E) 16



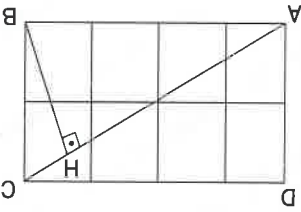
- A) 12 B) 13 C) 14 D) 15 E) 16

17. [BA] ⊥ [AC]
 $2m(\widehat{GAC}) = m(\widehat{ABC})$
G: ağırlık merkezi
center of gravity
|AG| = 12
|AB| = ?
A) 12 B) 13 C) 14 D) 16 E) 18



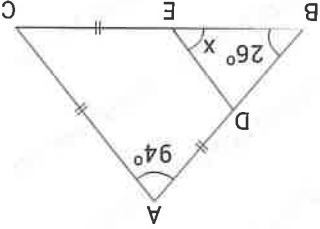
- A) 12 B) 13 C) 14 D) 16 E) 18

19. ABCD dikdörtgenin-
de birim karelere
ayrılmıştır.
The ABCD rectangle
is divided into unit
squares.
|BH| = ?
A) $\frac{2\sqrt{5}}{5}$ B) $\frac{3\sqrt{5}}{5}$ C) $\frac{4\sqrt{5}}{5}$ D) $\frac{5\sqrt{5}}{5}$ E) $\frac{6\sqrt{5}}{5}$



- A) $\frac{2\sqrt{5}}{5}$ B) $\frac{3\sqrt{5}}{5}$ C) $\frac{4\sqrt{5}}{5}$ D) $\frac{5\sqrt{5}}{5}$ E) $\frac{6\sqrt{5}}{5}$

20. |AD| = |AC| = |EC|
 $m(\widehat{BAC}) = 94^\circ$
 $m(\widehat{ABC}) = 26^\circ$
 $m(\widehat{DEB}) = x = ?$
A) 42 B) 44 C) 46 D) 47 E) 49



- A) 42 B) 44 C) 46 D) 47 E) 49

13.

5	19	27
62	76	84
19	33	?

- A) 41 B) 43 C) 45 D) 46 E) 47

12.

x	k	l	m
k	5l		
l			$8k^2$
m	l^2		

- A) 20 B) 25 C) 30 D) 35 E) 40

$k+l+m=?$

11.

+	k	l	m
k			
l			
m	$5l+3$		

x	k	l	m
k			
l			
m	64		

- A) 27 B) 28 C) 29 D) 30 E) 31

$k+l+m=?$

15.



14.

34	31	30	27
28	25	24	21
22	18	?	14
16	?	?	6

- A)

12	18
18	24

 B)

18	18
18	12

 C)

12	10
18	

 D)

24	16
12	

 E)

24	10
18	

a, b, c üçlüsü hangisi olabilir ?
Which can be the triple a, b, c?

- A)

3	31
7	21

 B)

2	11
3	6

 C)

4	c
a	b

 D)

2	5
1	2

 E)

13, 39, 53
3, 12, 19
5, 20, 27
7, 26, 39
10, 20, 24

16.

92	19	27
39	74	28
?	84	65

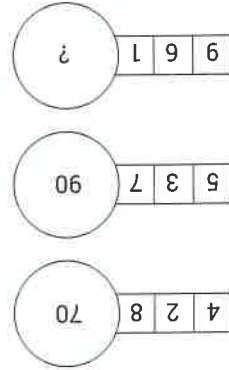
A) 91 B) 71 C) 59 D) 67 E) 17

17.

7	20	26
132	45	31
196	?	35
223	70	38

A) 211 B) 153 C) 99 D) 76 E) 61

18.



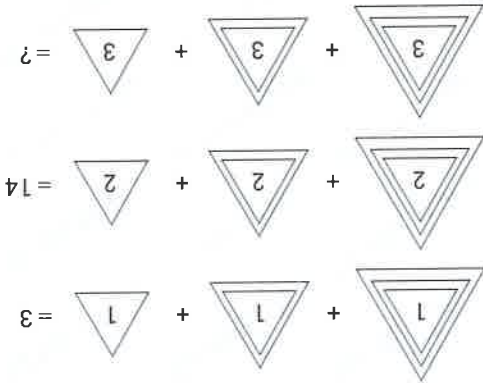
A) 110 B) 157 C) 107 D) 120 E) 211

19.

11	21	25	37	46	64
27	99	86	43	44	51
27	99	86	43	44	51
43	46	67	54	83	?

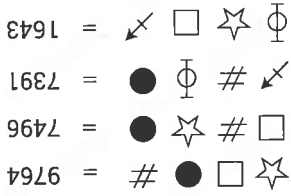
A) 60 B) 78 C) 80 D) 92 E) 99

20.



A) 33 B) 36 C) 39 D) 42 E) 45

21.



⇒ ● # ☆ ✂ = ?

A) 4197 B) 3791 C) 9137 D) 4173 E) 7349

22. 7 8 4 5 9 = 1518
 3 4 2 1 6 = 79
 2 9 5 1 8 = 1114
 1 2 3 4 5 = ?

A) 69 B) 105 C) 217 D) 309 E) 312

$$j * k = \begin{cases} j, & j \cdot k < 0 \\ -k, & j \cdot k \geq 0 \end{cases}$$

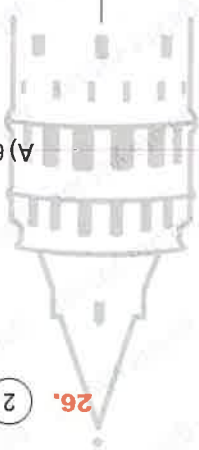
$$(3 * 4) * (5 * (-2)) = ?$$

A) 20 B) 21 C) 22 D) 23 E) 24

23. $a \blacktriangleright b = (a^2 b^3)^2$
 $(i \blacktriangleright j) \blacktriangleright k = ?$

A) $i!^j k^4$
 B) $i!^j k^{24}$
 C) $i!^4 j!^6 k^{36}$
 D) $i!^6 j!^6 k^{32}$
 E) $i!^4 j!^6 k^9$

E) $i!^4 j!^6 k^9$



26.

A) 611 B) 503 C) 485 D) 417 E) 379

A) $\frac{k^2}{1+k^2}$
 B) $\frac{k^2}{1-k^2}$
 C) $\frac{k^2}{k^2-1}$
 D) $1-\frac{1}{k}$
 E) $\frac{k}{1+k}$

$$x \blacktriangleright y = \frac{y^2}{y^2-x^2}$$

$$x \bullet y = x^2 y^3$$

$$x \blacklozenge y = x^2 y^3$$

$$x \blacktriangleleft y = x^2 y^3$$

$$x \blacktriangleright y = x^2 y^3$$

$$x \blacktriangleright y = x^2 y^3$$

27. 594 374 352 231 ?

A) 114 B) 110 C) 165 D) 583 E) 132

25. $j * k = j^2 + k$

28. 25, 47, 62, 67, 72, 78, 82, ?

A) 89 B) 90 C) 93 D) 97 E) 99

1. $\frac{3a+b}{2} = \frac{3}{b} \Rightarrow \frac{a}{b} = ?$

A) $\frac{9}{7}$ B) $\frac{8}{5}$ C) $\frac{8}{3}$ D) $\frac{3}{7}$ E) $\frac{5}{1}$

29.

25	42	50	84	100	?
17	8	34	16	68	?

A)

63
105

B)

72
115

C)

16
168

D)

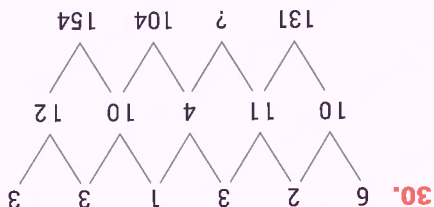
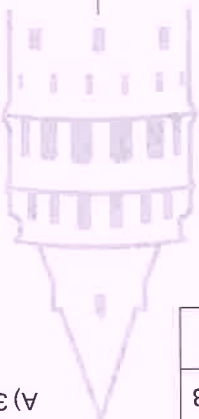
32
168

E)

84
196

2. $\frac{a}{b} = \frac{3}{4}$, $a+b=42 \Rightarrow b-a=?$

A) 3 B) 4 C) 5 D) 6 E) 7



A) 165 B) 158 C) 141 D) 92 E) 27

3. $5x = 2y = 3z$
 $\frac{x}{1} + \frac{y}{1} + \frac{z}{1} = 60 \Rightarrow x = ?$

A) $\frac{30}{1}$ B) $\frac{15}{1}$ C) $\frac{12}{1}$ D) 12 E) 30

4. $\frac{a}{2} = \frac{3}{2}$, $\frac{b}{4} = \frac{5}{4}$, $a-b+c=44 \Rightarrow b=?$

- A) 12 B) 24 C) 48 D) 50 E) 60

7. a, b, c sayılarının dördüncü orantılısı x ise, $\frac{a}{2} = \frac{b}{x} = \frac{c}{5}$ dir. 3, 4, 6 sayılarıyla dördüncü orantılı olan sayı kaçtır ?
If the fourth proportion of the numbers a, b, c is x, then $\frac{a}{2} = \frac{b}{x} = \frac{c}{5}$. What is the fourth proportional number with the numbers 3, 4, 6?

- A) 10 B) 8 C) 6 D) 4 E) 3

5. a : b : c = 3 : 4 : 5
 $3a - 2b + c = 30$
 $\Rightarrow a + b + c = ?$

- A) 72 B) 60 C) 48 D) 36 E) 24

8. $\frac{a}{2} = \frac{b}{3} = \frac{c}{4} = \frac{e}{5}$
 $\frac{a}{b} = \frac{d}{c} = \frac{f}{e} = \frac{2}{5}$
 $2a - 3c + e = 10$
 $3d - f = -5$
 $\Rightarrow b = ?$

- A) 3 B) 4 C) 5 D) 6 E) 10

9. x ve y sayılarının geometrik ortalaması 6, aritmetik ortalaması 4 olduğuna göre, Since the geometric mean of the numbers x and y is 6 and the arithmetic mean is 4,
 $\frac{2xy}{x+y} = ?$

- A) 4 B) 7 C) 9 D) 10 E) 12

6. $\frac{a}{6} = \frac{b}{c} = \frac{d}{e} = \frac{f}{3}$
 $\Rightarrow \frac{e \cdot b \cdot d}{a \cdot f \cdot c} = ?$

- A) $\frac{8}{27}$ B) $\frac{4}{9}$ C) 1 D) $\frac{2}{3}$ E) $\frac{3}{2}$

10. x-1 sayısı, y-2 ile doğru, z-3 ile ters orantılıdır. The number x-1 is directly proportional to y-2 and inversely proportional to z-3.
x = 7, y = 3 için z = 5 ise
x = 3, y = 4 için z kaçtır ? / what is z ?

- A) 15 B) 12 C) 9 D) 7 E) 5

11. Bir işçi günde 6 saat çalışarak bir işi 10 günde bitiriyor.
Buna göre, 3 işçi günde 10 saat çalışarak aynı işi kaç günde bitirir ?
A) 2 B) 5 C) 7 D) 10 E) 12
- A worker works 6 hours a day and finishes a job in 10 days. Accordingly, in how many days do 3 workers work 10 hours a day and finish the same job?

14. 20 tane sayının aritmetik ortalaması 18 dir. Bu sayıların herbirinden 2 çıkarırsak yeni aritmetik ortalamaya kaç olur ?
The arithmetic mean of 20 numbers is 18. If we subtract 2 from each of these numbers, what will be the new arithmetic mean?
- A) 13 B) 14 C) 15 D) 16 E) 17

12. $\frac{a}{b} = \frac{c}{d} = 2 \Rightarrow \frac{d}{a} = ?$

- A) 2 B) 4 C) 8 D) 10 E) 12

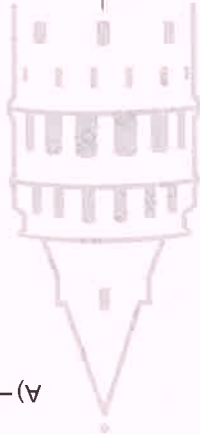
15. $2006^2 - 2005 \cdot 2007 = ?$

- A) -1 B) 0 C) 1 D) 2003 E) 2006

13. $2a = 6b = 5c$
olduğuna göre a,b,c sayıları sırasıyla aşağıdakilerden hangileri ile orantılıdır ?
The numbers a, b, c are respectively proportional to which of the following?
- A) 2, 6, 5 B) 3, 5, 6 C) 15, 5, 6 D) 30, 15, 6 E) 6, 5, 2

16. $\frac{2}{a} = \frac{3}{b} = \frac{5}{c} \Rightarrow \frac{a-b+c}{a-b+c} = ?$

- A) $\frac{5}{3}$ B) $\frac{5}{2}$ C) $\frac{3}{2}$ D) $\frac{2}{3}$ E) $\frac{2}{5}$



$$17. n \in \mathbb{N} \\ 3+5+7+\dots+(2n-1) = 399 \\ \Rightarrow n = ?$$

- A) 17 B) 18 C) 19 D) 20 E) 21

$$20. \frac{n \cdot (n+1)!}{(n-1)!} = 12 \Rightarrow n = ?$$

- A) 2 B) 3 C) 4 D) 5 E) 6

18. a, b ve c gerçel (real) sayılardır. a, b and c are real numbers.

$$\frac{a^3}{b^3} > 0, \frac{c^3}{a^2} < 0, \frac{a}{c^5} < 0$$

olduğuna göre a, b, c nin işaretleri sırasıyla hangisidir ?
What are the signs of a, b, c respectively?

- A) +, +, - B) -, -, + C) -, +, - D) +, -, + E) +, +, +

- A) 6 B) 7 C) 8 D) 9 E) 10

21. $3 \cdot 9^n$ sayısının 28 tane tam sayı böleni olduğuna göre, n kaçtır ?
 $3 \cdot 9^n$ has 28 integer divisors, what is n?

$$19. A = 3 \cdot 5 + 4 \cdot 7 + 5 \cdot 9 + \dots + 19 \cdot 37 \\ = 3 \cdot 7 + 4 \cdot 9 + 5 \cdot 11 + \dots + 19 \cdot 39 = ?$$

- A) A+285 B) A+374 C) A+300 D) A+226 E) A+35

- A) -4 B) -3 C) -2 D) 2 E) 4

$$22. a = -3, b = 2 \Rightarrow \frac{a^3 - b^3 - 5}{a^2 - b^2 - 15} = ?$$

23. $a, b, c, \in \mathbb{Z}$

$(3a - 7b + 10)^{6+c}$ sayısı negatif tek sayı olduğuna göre aşağıdakilerden hangisi daima çift sayı olur?
 following is always an even number?

- A) $a \cdot b + c$ B) $(a+b) \cdot c$ C) $a+b+c$
 D) $a(b+c)$ E) $a+b \cdot c$

24. $\frac{3^3+6^3+9^3+\dots+90^3}{2^3+4^3+6^3+\dots+60^3} = ?$

- A) $\frac{3}{2}$ B) $\frac{2}{3}$ C) $\frac{4}{9}$ D) $\frac{8}{27}$ E) $\frac{27}{8}$

25. x, y, z, t farklı asal sayılardır. x, y, z, t are different prime numbers.

A) $x^2 \cdot y^2 \cdot z \cdot t^2$

B) $x^2 \cdot y^4 \cdot z^3$

C) $x \cdot y^3 \cdot t^3$

$\frac{\text{OBEB}(A, B)}{\text{OBEB}(B, C)} = ?$

A) $\frac{x}{y \cdot z}$

B) $\frac{x \cdot z}{y}$

C) $x \cdot y \cdot z$

D) $x \cdot y \cdot t$

E) $y \cdot z$

26. $x > 0 < y$

$\sqrt{x^2} - \sqrt[3]{y^3} + \sqrt[4]{(x-y)^4} = ?$

A) $-2x$

B) $-x$

C) $x - y$

D) $x + y$

E) $2x - 2y$

27. $7^x - 7^{-x} = 5 \Rightarrow 7^{2x} + 7^{-2x} = ?$

- A) 23 B) 25 C) 27 D) 29 E) 31

28. $x - 3\sqrt{x} = 8 \Rightarrow x^2 - 25x + 4 = ?$

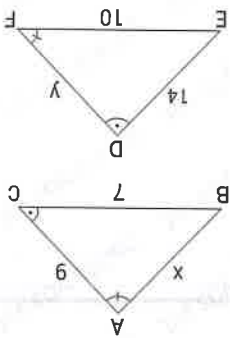
- A) -60 B) -36 C) 20 D) 24 E) 36

29. $x + 2(x + 2) - 1 = \frac{x + 1}{x + 1} = ?$

- A) -3
- B) $2x - 3$
- C) $3 - x$
- D) 3
- E) $x + 3$

1. $m(\widehat{BAC}) \cong m(\widehat{DFE})$
 $m(\widehat{BCA}) = m(\widehat{EDF})$

$|BC| = 7$
 $|AC| = 9$
 $|EF| = 10$
 $|DE| = 14$
 $y - x = ?$

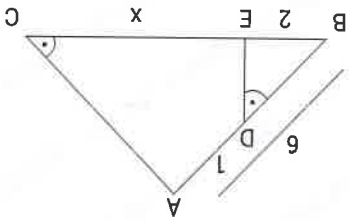


- A) 9
- B) 11
- C) 12
- D) 13
- E) 14

30. $x - 2 = y$
 $\Rightarrow |x - y| + |y - x| = ?$

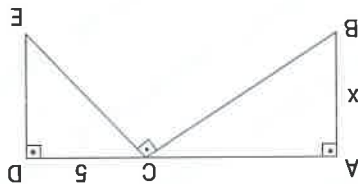
- A) -4
- B) -2
- C) 0
- D) 2
- E) 4

2. $m(\widehat{BDE}) = m(\widehat{ACB})$
 $|AD| = 1$
 $|BE| = 2$
 $|AB| = 6$
 $|EC| = ?$



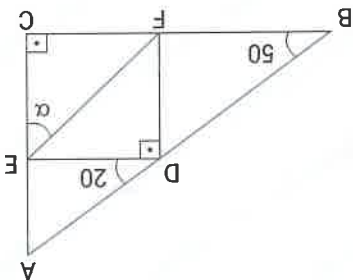
- A) 7
- B) 8
- C) 11
- D) 12
- E) 13

3. $[BC] \perp [CE]$
 $[AD] \perp [DE]$
 $[AB] \perp [AD]$
 $|AC| = 2|DE|$
 $|AB| = x = ?$



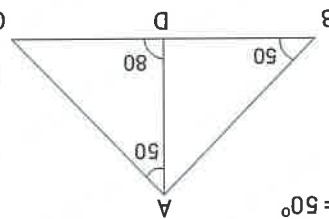
- A) 5 B) 6 C) 9 D) 10 E) 12

5. $\widehat{CBA} \sim \widehat{DEF}$
 $m(\widehat{ADE}) = 20$
 $m(\widehat{ABC}) = 50$
 $[DE] \perp [DF]$
 $[AC] \perp [BC]$
 $\alpha = ?$



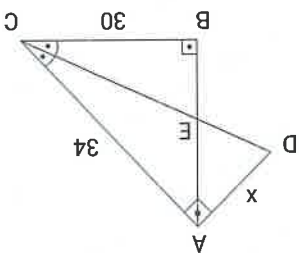
- A) 10 B) 20 C) 30 D) 40 E) 50

4. $m(\widehat{ABC}) = m(\widehat{DAC}) = 50^\circ$
 $m(\widehat{ADC}) = 80^\circ$
 $|AD| = x$
 $|AC| = y$
 $|BD| = n$
 x ve y cinsinden n değeri nedir?
 what is y in terms of x ?



- A) $\frac{x}{y^2 - x^2}$
 B) $\frac{x}{y^2 + x^2}$
 C) $\frac{x}{x^2 - y^2}$
 D) $\frac{y}{x^2 - y^2}$
 E) $\frac{x}{y^2 - x}$

6. $[AD] \perp [AC]$
 $[AB] \perp [BC]$
 $m(\widehat{ACD}) = m(\widehat{DCB})$
 $|BC| = 30$
 $|C| = 34$
 $|AD| = x = ?$



- A) 7,5 B) 8,5 C) 9 D) 9,5 E) 10

KTS 9

YÖS

7. ADE eşkenar üçgen
ADE eşilateral triangle

$m(\widehat{BAC}) = 120^\circ$

$|BD| = 7$

$|EC| = 21$

$\widehat{ADE} = ?$

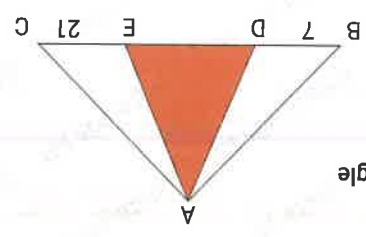
A) $14\sqrt{3}$

B) $17\sqrt{3}$

C) $18\sqrt{3}$

D) $20\sqrt{3}$

E) $21\sqrt{3}$



9.

$[CD] \parallel [AB]$

$|CD| = 8$

$|BC| = 6$

$|BD| = 12$

$|AB| = 18$

$|AD| = x = ?$

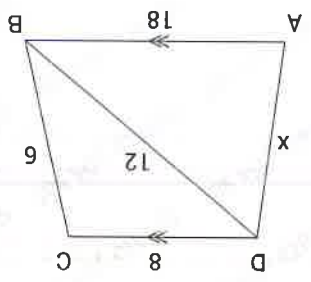
A) 6

B) 7

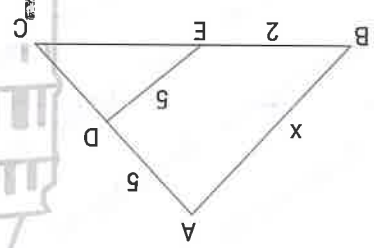
C) 8

D) 9

E) 10



8. $|AD| = |DE| = 5$
 $|AC| = 8$
 $|BE| = 2$
 $|BC| = 6$
 $|AB| = x = ?$



10. $[AB] \parallel [DE]$

$|DC| = 3$

$|BE| = 4$

$|EC| = 9$

$x = ?$

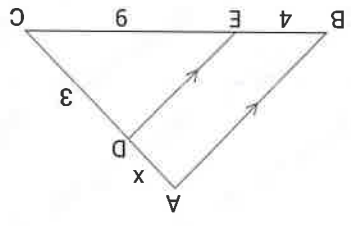
A) $\frac{1}{3}$

B) $\frac{2}{3}$

C) 1

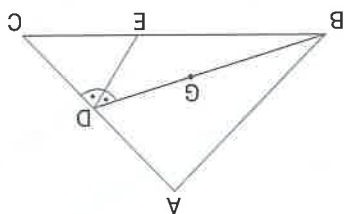
D) $\frac{3}{4}$

E) 12



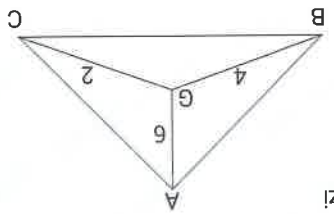
- A) 5
- B) 6
- C) 9
- D) 10
- E) 12

11. G: ağırlık merkezi
Center of gravity
 $m(\widehat{BDE}) = m(\widehat{EDC})$
 $|GD| = 2|DC|$
 $\frac{|EC|}{|BC|} = ?$



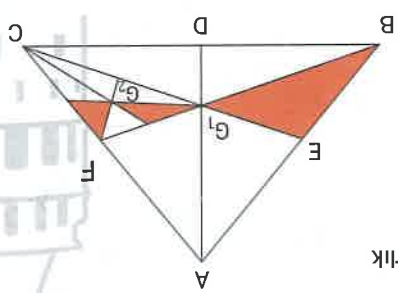
- A) $\frac{1}{3}$
- B) $\frac{1}{6}$
- C) $\frac{1}{7}$
- D) $\frac{1}{8}$
- E) $\frac{1}{9}$

13. G: ABC ağırlık merkezi
Center of gravity
 $|GC| = 2$
 $|BG| = 4$
 $|AG| = 6$
 $|BC| = ?$



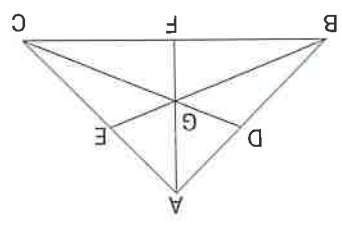
- A) 2
- B) 4
- C) 6
- D) 8
- E) 10

12. G₁: ABC üçgeninin ağırlık merkezi
Center of gravity
G₂: G₁CF üçgeninin ağırlık merkezi
Center of gravity
 $\frac{TA}{A(\widehat{ABC})} = ?$



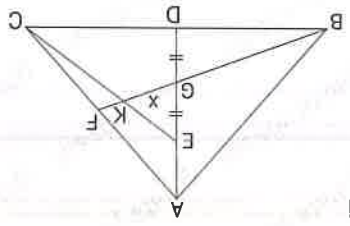
- A) $\frac{3}{2}$
- B) $\frac{5}{2}$
- C) $\frac{7}{3}$
- D) $\frac{3}{8}$
- E) $\frac{9}{2}$

14. G: ağırlık merkezi
Center of gravity
 $|GC| + |BG| + |AG| = 14$
 $|AF| + |BE| + |DC| = ?$



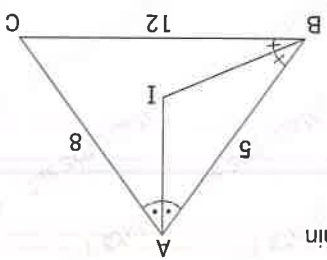
- A) 14
- B) 16
- C) 18
- D) 20
- E) 21

15. G: ABC ağırlık merkezi
 |GE| = |GD|
 |BF| = 18
 |GK| = x = ?



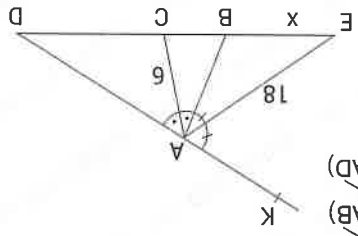
- A) 2 B) 3 C) 4 D) 5 E) 6

18. I: içteğel çemberinin merkezi
 center is the inner tangent circle
 |AB| = 5
 |AC| = 8
 |BC| = 12
 $\frac{A(ABI)}{A(ABC)} = ?$



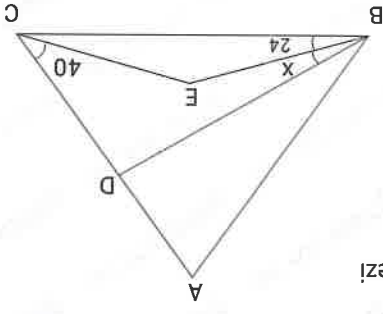
- A) $\frac{1}{2}$ B) $\frac{1}{3}$ C) $\frac{1}{4}$ D) $\frac{1}{5}$ E) $\frac{1}{6}$

16. m(\widehat{KAE}) = m(\widehat{EAB})
 m(\widehat{BAC}) = m(\widehat{CAD})
 |AC| = 6
 |AE| = 18
 |BC| = $\sqrt{10}$
 |EB| = x = ?



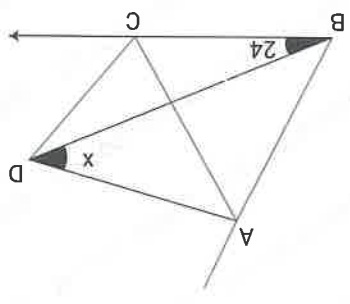
- A) $\sqrt{10}$ B) $2\sqrt{10}$ C) $3\sqrt{10}$ D) $4\sqrt{10}$ E) $5\sqrt{10}$

19. E, ABC dikiklik merkezi
 orthocentre
 [BD, ABC agisimi
 aciortayl
 BD is the bisector
 of ABC angle.
 m(\widehat{EBC}) = 24
 m(\widehat{ECD}) = 40
 x = ?



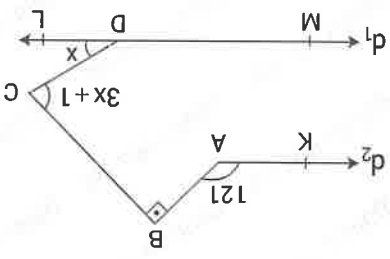
- A) 6 B) 7 C) 8 D) 9 E) 12

17. |BC| = |CD|
 D, ABC nin dis teğel çemberinin merkezi
 D is the center of the outer tangent circle of ABC
 m(\widehat{DBC}) = 24°
 m(\widehat{ADB}) = x = ?



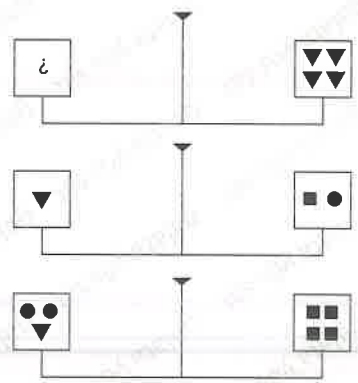
- A) 42 B) 48 C) 80 D) 84 E) 88

20. $d_1 // d_2$
 m(\widehat{KAB}) = 121
 m(\widehat{ABC}) = 90°
 m(\widehat{BCD}) = 3x + 1
 m(\widehat{CDL}) = x
 m(\widehat{CDM}) = ?



- A) 120 B) 130 C) 140 D) 150 E) 165

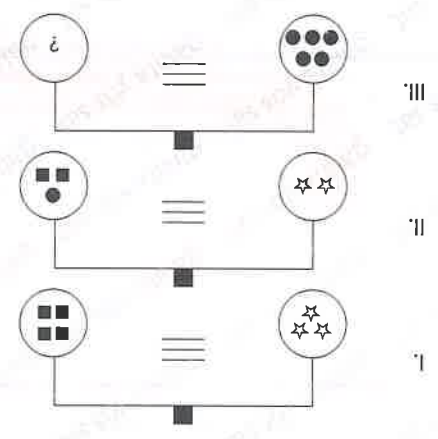
1.



Yukarıdaki terazilerin üçüde dengededir. Üçüncü terazi-
deki " ? " ağıdakilere hangisini göstermektedir.
All three of the above scales are in balance. Which of the
following does the " ? " in the third scale show?

- A) ●●●●●●●●
B) ●●●●●●●●
C) ●●●●●●●●
D) ●●●●●●●●
E) ●●●●●●●●

2.

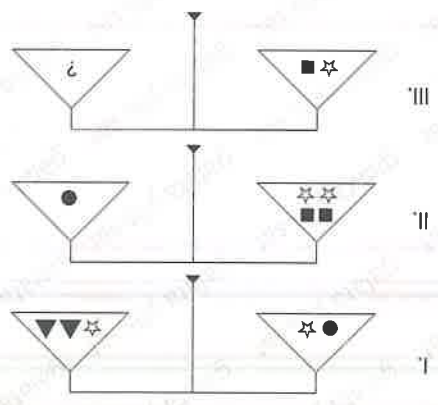


Yukarıdaki terazilerin üçüde dengeli olduğuna göre,
III. terazide soru işareti aşağıdakilerden hangisini
göstermektedir?
All three of the above scales are in balance. Which of
the following indicates the question mark on the third
scale?

- A) ■ ■ ■ ■
B) ☆ ☆ ☆ ☆
C) ☆ ☆ ☆
D) ■ ■ ■ ☆
E) ● ● ● ☆

1

3.



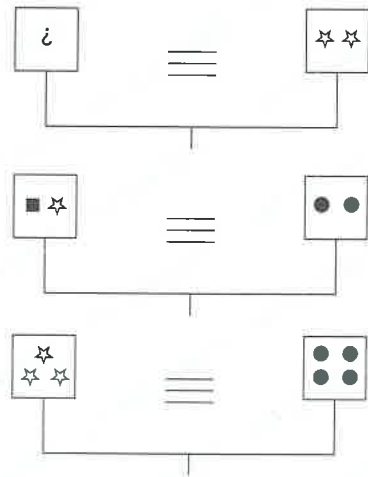
- A) △
B) △ ☆
C) ●
D) △ △ △
E) ☆ ☆ ☆



I. ve II. terazi dengededir III. terazinin dengede
olabilmesi için sağ kefeye ▲ tırü ağırlıktan kaç
tane koymak gerekiyor?
Scale I. and II. are balanced to keep scale III. balanced
how many weights should be placed on the right
hand side of the right hand side of the scale

- A) 1
B) 2
C) 3
D) 4
E) 5

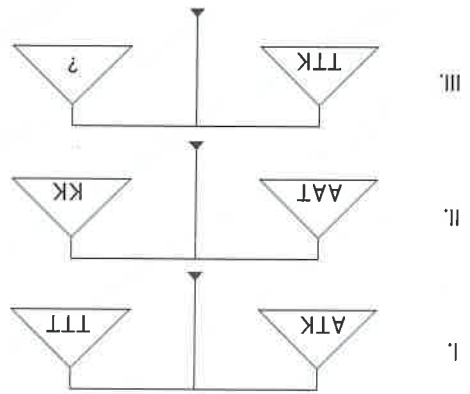
5.



Soru işareti yerine aşağıdakilerden hangisi gelmelidir ?
Which of the following should be instead of the question mark?

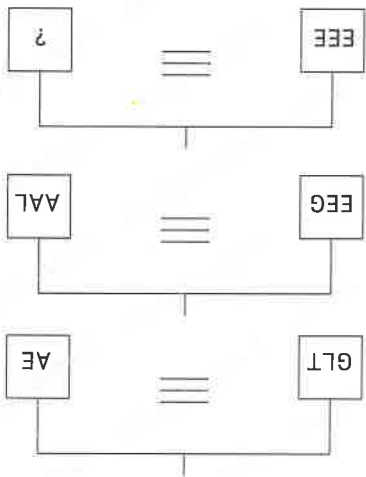
- A) ■ ■ ■
- B) ● ● ●
- C) ● ● ●
- D) ■ ■ ☆
- E) ● ■ ■

6.

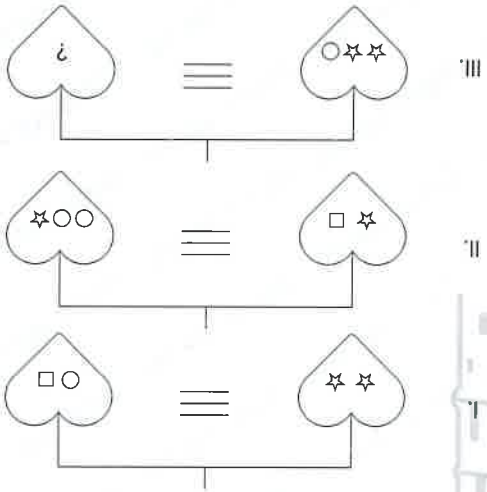


- A) KA
- B) AAAT
- C) TTKK
- D) KAA
- E) KTA

7.



- A) TLAA
- B) ATTL
- C) LLAT
- D) GLTT
- E) AATT

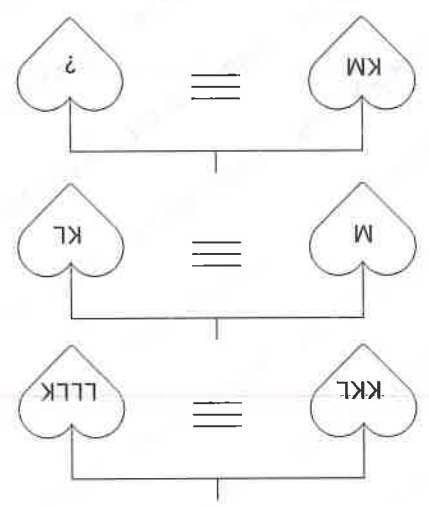


- A) □ □
- B) ○ ○
- C) □ ☆
- D) ○ □
- E) ☆ ○



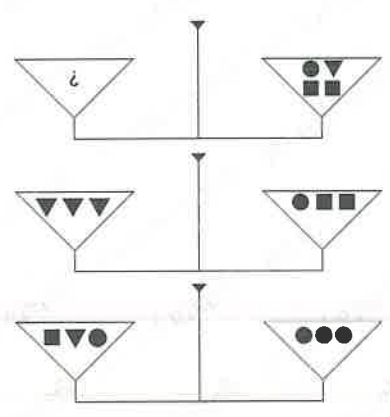
10.

- A) LLLL
- B) LMM
- C) LKKK
- D) KLL
- E) MLTK



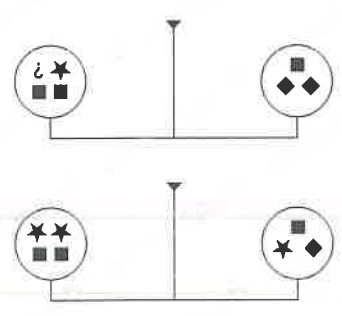
9.

- A) ●●●
- B) ■■■●●
- C) ▼▼▼●●
- D) ▼▼▼■■■
- E) ●●●▼▼▼

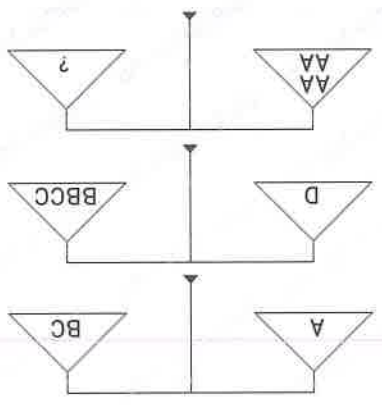


11.

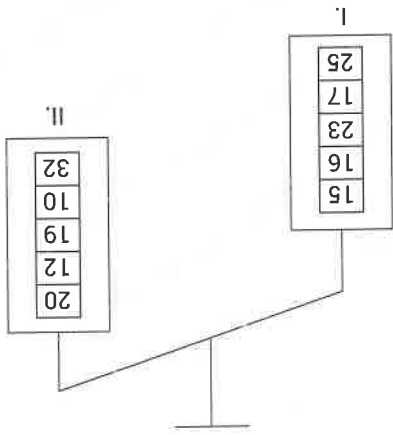
- A) ■■■★
- B) ◆◆★
- C) ■■
- D) ★★
- E) ◆



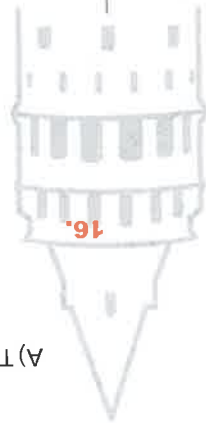
- A) d
- B) dd
- C) ddd
- D) dddd
- E) ddddd



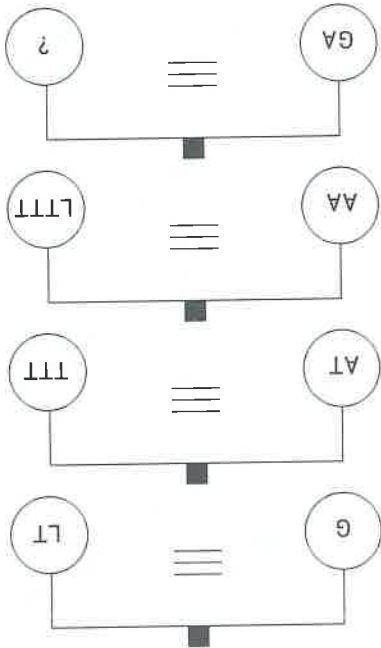
Terazinin dengeye gelmesi için her bir kereden hangi ağırlıklar alınmalıdır?
In order to get the scale balanced which weights should be removed from each side?



- I. A) 16 19
B) 15 12
C) 15 32
D) 17 10
E) 25 20

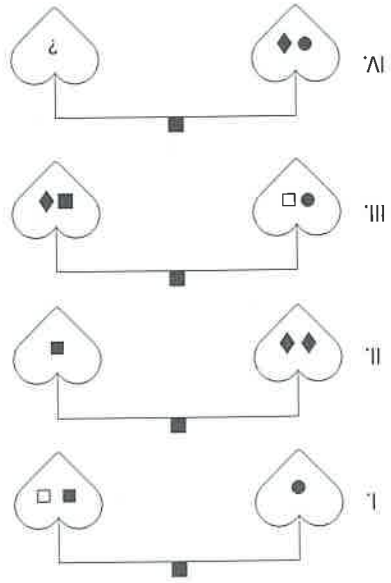


- A) T
B) GG
C) TLL
D) AAA
E) LLL



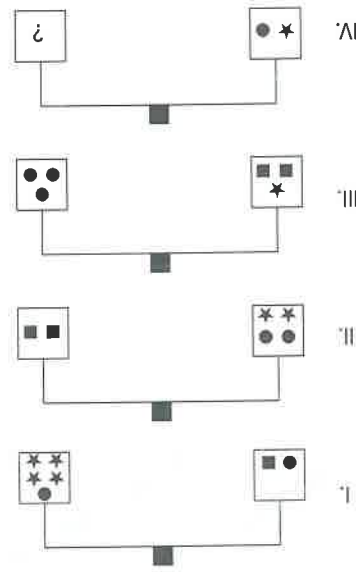
15.

- A) ■ ■
B) ■
C) ■ ◆
D) ■ ◆
E) ■ ■ ■ ■



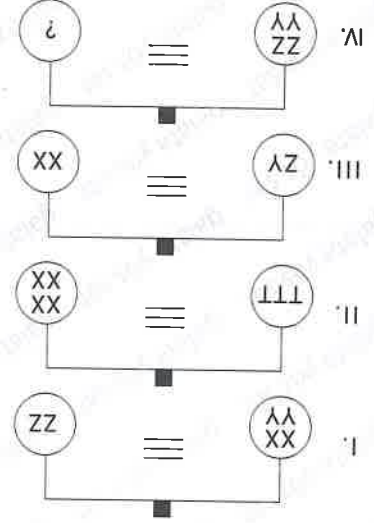
14.

- A) ★ ★ ★
B) ■ ■ ■ ■
C) ■
D) ★ ★ ★ ★
E) ■ ■ ■ ■



13.

A) TTT B) XXT C) TTV D) TTX E) YXXT

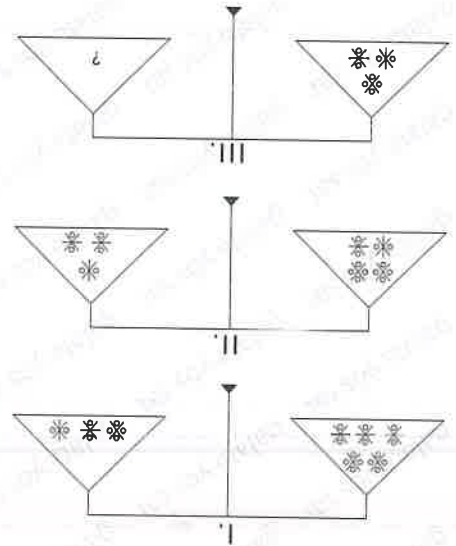


18.

A) 7 B) 8 C) 9 D) 10 E) 11

Scale I. and II. are balanced to keep scale III. balanced, how many weights should be placed on the right hand side of the scale?

I. ve II. terazi dengededir. III. terazinin dengede olabilmesi için sağ keteğe * türü ağırlıktan kaç tane koymak gerekir?



17.

56 121 242 verilen üç sayı arasındaki kuralı cevap şıklarından hangi üç sayı arasında vardır?
Which of the following has the same rule as the rule of the relation between 56 121 242 numbers?

A) 98 187 967
B) 25 51 103
C) 86 154 605
D) 10 46 95
E) 16 32 64

20.

I. II.
19 29
27 36
32 37
98 115
104 ?

A) 109 B) 110 C) 111 D) 112 E) 113

$$I. \quad \frac{a \sqrt{b} + \frac{a+b}{1}}{1} = 1 + \frac{a^2 + b^2}{1}$$

II. $1 \sqrt{2} = ?$

A) $\frac{1}{2}$ B) 1 C) $\frac{2}{3}$ D) 3 E) $\frac{2}{5}$

22. 16 * 21 = 37
38 * 14 = 89
62 * 52 = 68
54 * 23 = ?

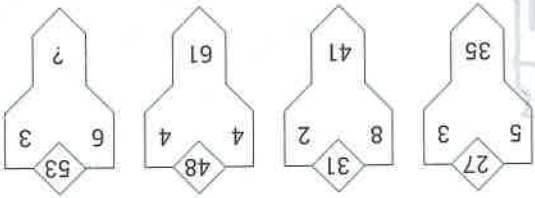
A) 98 B) 127 C) 141 D) 153 E) 205

- A) 5 B) 4 C) 3 D) 2 E) 0

$c = ?$

			c
		$c+20$	b
$b+8$		$c+23$	a
c	b	a	+

- A) 54 B) 62 C) 75 D) 97 E) 111



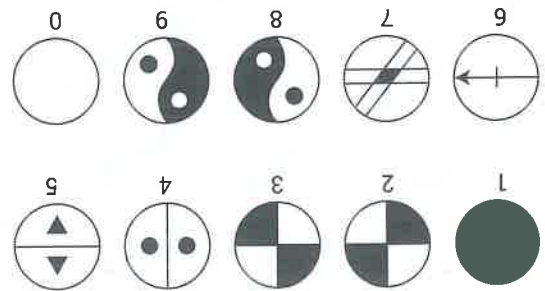
26.

25.

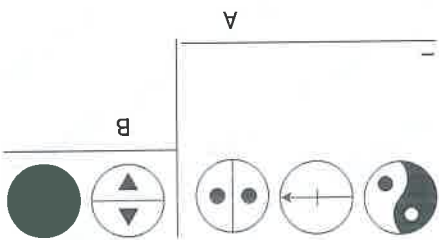
23.

Questions 23 and 24 will be answered according to the symbols above.

23. ve 24. sorular yukarıdaki sembollere göre cevaplanacaktır ?



24.



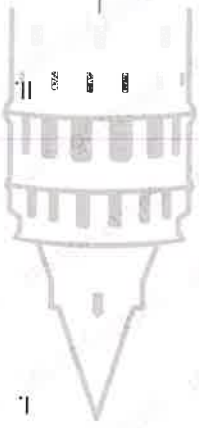
Özellik Feature

28.

25	81	61	K
17	96	76	141
14	57	L	102
4	51	31	27

$\Rightarrow K+L=?$

- A) 75 B) 98 C) 122 D) 151 E) 163



30.

- A) 100 B) 120 C) 140 D) 160 E) 180

$\Rightarrow K-L=?$

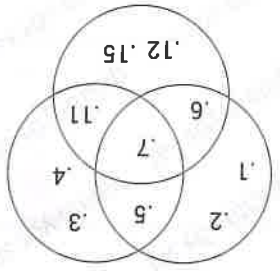
r		L
p	K	
x	p	r

	r	
	p	6
-	p	r

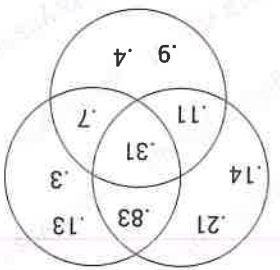
r		
p		20
+	p	r

27.

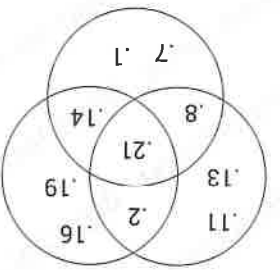
- A) 19 B) 27 C) 30 D) 37 E) 42



← ?



← 33



← 46

- A) 9 B) 10 C) 11 D) 12 E) 13

47	47	3	4	?
37	100	5	3	12
21	83	10	2	4
14	17	5	2	6

29.

1. $A = \{a, b, \{b\}, c, d, \{e\}\}$

kümes için aşağıdakilerden hangisi yanlıştır ?

which of the following is wrong for the set A?

- A) $b \in A$ B) $\{a\} \in A$ C) $\{c, d\} \in A$

- D) $\{b\} \in A$ E) $\{e\} \in A$

2.

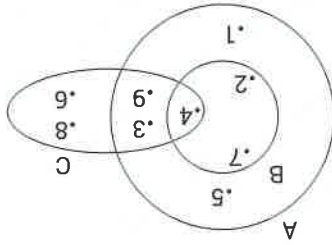
$A = \{1, 2, 3, 4\}$

$B = \{3, 4, 5, 6\}$

$\Rightarrow S(A-B) = ?$

- A) 2 B) 3 C) 4 D) 5 E) 6

3.



Yukarıda verilen A, B, C kümeleri için aşağıdakilerden hangisi yanlıştır ?
which of the following is false for sets A,B,C given above?

- A) $A \cap B = \{2, 4, 7\}$ B) $A \cap C = \{3, 9\}$
C) $B \cap C = \{4\}$ D) $s(A) = 7$
E) $s(C) = 5$

4.

$A = \{x \mid 50 \leq x \leq 200, x = 5k, k \in \mathbb{N}\}$
 $B = \{x \mid 60 \leq x \leq 240, x = 3m, m \in \mathbb{N}\}$

$\Rightarrow s(A \cap B) = ?$

- A) 5 B) 7 C) 8 D) 10 E) 11

5.

$s(A) = 2 \cdot s(B)$
 $s(A \cap B) = 6$
 $s(A \cup B) = 30$
 $\Rightarrow s(B) = ?$

- A) 12 B) 14 C) 16 D) 18 E) 20

6.

$A \subset U, B \subset U$
 $s(A) + s(B) = 32$
 $s(A') + s(B) = 26$
 $\Rightarrow s(U) = ?$

- A) 28 B) 29 C) 30 D) 31 E) 32

7.

$A \subset U, B \subset U$ (U: Evrensel küme) / Universal set
 $(A \cup B) \cap (B' - A) = ?$

- A) $A \cap B$ B) $A - B$ C) $A \cup B$
D) $A' - B$ E) \emptyset

8. $A = [0,1], B = [-1,5], C = \left(\frac{1}{2}, 8\right]$

$\Rightarrow (A-B) \cup C = ?$

- A) $(1, 8]$ B) $[1, 8]$ C) $(1, 8)$ D) $[0, 8]$ E) $[0, 1]$

12. $A \neq \emptyset, B \neq \emptyset$

$s(A \cup B) = 6, s(A \cap B) = 3 \Rightarrow \max s(A) = ?$

- A) 8 B) 7 C) 6 D) 5 E) 4

13. $A = \{a, b, c, d, e\}$ kümesinin alt kümelerinin kaç

tanesinde d elemanı bulunmaz?

How many of the subsets of the A set do not have the d element?

- A) 4 B) 8 C) 16 D) 24 E) 32

10. $A' \subset B'$

olmak üzere A ve B kümeleri veriliyor. A and B sets are given.

Buna göre, $A \cap B'$ ifadesi hangisine eşittir?

Accordingly, which of the following is equal to $A \cap B'$?

- A) $A \cup B$ B) $A \setminus B$ C) $B \setminus A$ D) A' E) B'
- A) 10 B) 15 C) 20 D) 35 E) 30

11. $s(A \cup B) = 40$

$s(B) = 4 \cdot s(A - B)$

$s(A \cap B) = 2 \cdot s(A - B)$

olduğuna göre, s(A) kaç elemandır?

Accordingly, how many elements does s(A) have?

- A) 8 B) 10 C) 12 D) 16 E) 18

15. $\sqrt{20 + \sqrt{20 + \sqrt{20 + \dots}}} = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

16. $(x+y+z)^2 - (x-y+z)^2 = ?$

- A) $4x \cdot (y+z)$
 B) $4y \cdot (x+z)$
 C) $4z \cdot (x+y)$
 D) $4y \cdot (x-z)$
 E) $4x \cdot (y-z)$

17. $(402)_7 = (xyz)_9 \Rightarrow x+y+z = ?$

- A) 5
 B) 6
 C) 7
 D) 8
 E) 9

18. $\frac{(m-6)^i + (m-3)^i}{(m-2)^i + (6-m)^i} = ?$

- A) $\frac{5}{7}$
 B) $\frac{10}{7}$
 C) $\frac{15}{7}$
 D) $\frac{20}{7}$
 E) $\frac{25}{7}$

19. $0i+6i+12i+\dots+60i$ toplamın onlar basamağındaki rakam kaçtır?
 what is the number in the tens-digit of the sum?

- A) 1
 B) 2
 C) 3
 D) 4
 E) 6

20. $\frac{1}{1} \geq \frac{2x+a}{12} \geq \frac{1}{1}$ S.S. = $(-3, 3]$

$\Rightarrow a = ?$

- A) -3
 B) 0
 C) 3
 D) 6
 E) 8

21. Üç basamaklı xyz sayısı için $xyz = x^3 + y^3 + z^3$ oluyorsa

bu sayıya "Armstrong" sayı denir.

If $xyz = x^3 + y^3 + z^3$, this number is called the "Armstrong" number.

Örneğin $153 = 1^3 + 5^3 + 3^3$ olduğundan 153 bir Armstrong

sayıdır.

As an example, since $153 = 1^3 + 5^3 + 3^3$ is an

Armstrong number.

3A1 sayısı bir Armstrong sayısı olduğuna göre, A rakamı

kaçtır?

Since the number 3A1 is an Armstrong number, what is the digit A?

- A) 5
 B) 6
 C) 7
 D) 8
 E) 9

22. $\frac{0,005 \cdot 10^{35} + 0,8 \cdot 10^{33}}{10^{32}} = ?$

- A) 5
 B) 6
 C) 13
 D) $4 \cdot 10^{32}$
 E) $4 \cdot 10^{33}$

23. $\sqrt{792}$ ifadesinin yaklaşık değerinin hesaplanabilmesi için aşağıdakilerden hangisinin değeri bilinmelidir ?
Which of the following should be known to calculate the approximate value of $\sqrt{792}$?

- A) $\sqrt{2}$
B) $\sqrt{5}$
C) $\sqrt{11}$
D) $\sqrt{14}$
E) $\sqrt{22}$

$$24. \frac{2}{7} \cdot \frac{x}{y} = \frac{z}{12} \Rightarrow \frac{4yz - 8xy}{7xy} = ?$$

- A) $\frac{6}{1}$
B) $\frac{3}{1}$
C) $\frac{3}{2}$
D) $\frac{4}{3}$
E) $\frac{7}{16}$

$$28. a, b \in \mathbb{N} \quad 50! = 5^a \cdot b \Rightarrow \max(a) = ?$$

- A) 102
B) 106
C) 108
D) 116
E) 120

27. Bir üçgenin dış açılarının ölçüleri 3, 5 ve 7 sayıları ile doğru orantılıdır.
The dimensions of the outer angles of a triangle are directly proportional to the number 3,5 and 7.
Buna göre, bu üçgenin en büyük iç açısının ölçüsü kaç derecedir ?
Accordingly, how many degrees is the measure of the largest inner angle of this triangle?

- A) 10
B) 11
C) 12
D) 22
E) 25

$$25. x+1 = \frac{2}{1} \Rightarrow \frac{y+1}{x^2+4x+4} = \frac{y^2+6y+9}{x^2+4x+4} = ?$$

- A) $\frac{2}{1}$
B) $\frac{4}{1}$
C) 1
D) 2
E) 4

$$29. \frac{a}{c} = \frac{b}{d} = 3 \Rightarrow \frac{b \cdot d}{a \cdot c} = ?$$

- A) 20
B) 24
C) 30
D) 12
E) 9

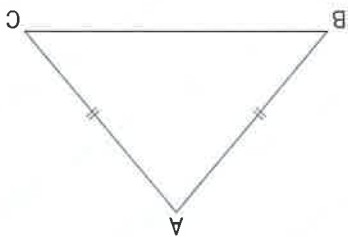
$$26. \frac{b}{a} = \frac{d}{c} = \frac{f}{e} = 4 \Rightarrow \frac{b+d+f}{a+c+e} = ?$$

- A) 5
B) 4
C) 3
D) 2
E) 1

$$30. \left[\frac{3}{1} - \frac{4}{1} \right] : \left[\frac{6}{1} \cdot \frac{2}{1} \right] = ?$$

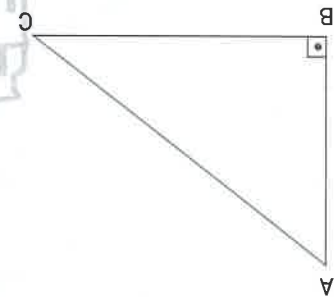
- A) $\frac{8}{1}$
B) $\frac{4}{1}$
C) $\frac{2}{1}$
D) 1
E) 2

1. $|AB| = |AC| = 17$
 $|BC| = 16$
 $A(\triangle ABC) = ?$



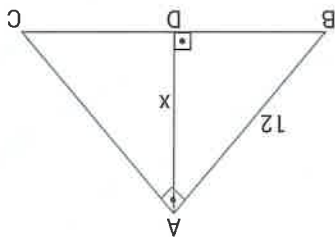
- A) 100 B) 110 C) 120 D) 130 E) 135

2. $[AB] \perp [BC]$
 $|AB| = 9$
 $|BC| = 16$
 $A(\triangle ABC) = ?$



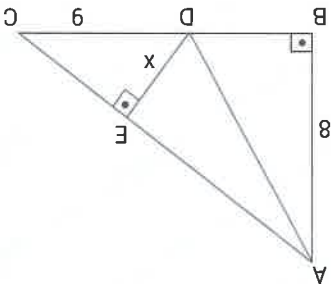
- A) 60 B) 65 C) 70 D) 72 E) 80

3. $[AB] \perp [AC]$
 $[AD] \perp [BC]$
 $|AB| = 12$
 $|BC| = 20$
 $x = ?$



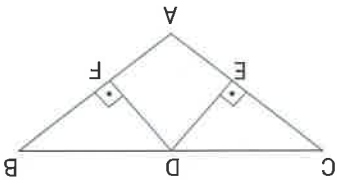
- A) $\frac{5}{12}$ B) $\frac{5}{24}$ C) $\frac{5}{32}$ D) $\frac{5}{36}$ E) $\frac{5}{48}$

4. $[AB] \perp [BC]$
 $[AC] \perp [DE]$
 $|AB| = 8$
 $|CD| = 9$
 $|AC| = 12$
 $x = ?$



- A) 5 B) 6 C) 7 D) 8 E) 9

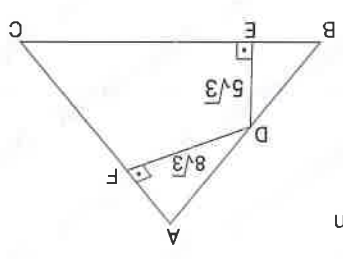
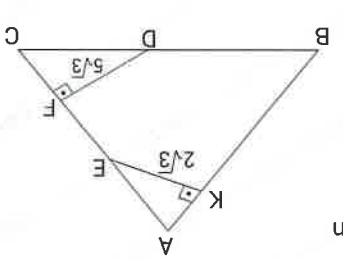
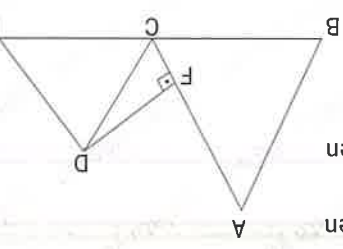
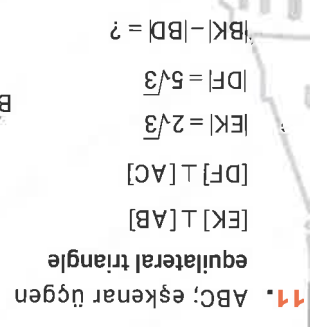
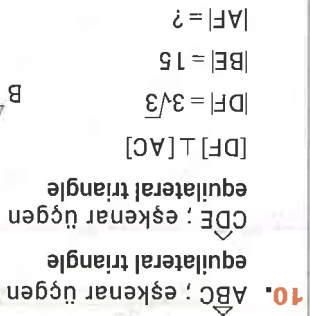
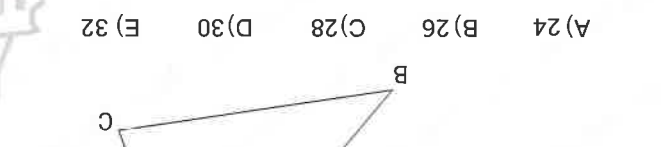
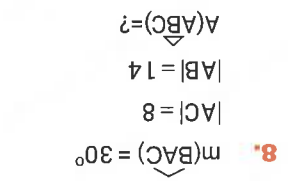
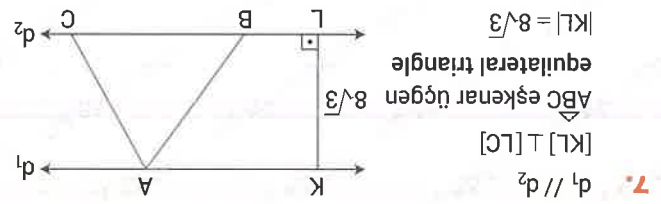
5. $[DE] \perp [AC]$
 $[DF] \perp [AB]$
 $|AC| = |AB| = 14$
 $|DE| + |DF| = 2\sqrt{2}$
 $A(\triangle ABC) = ?$



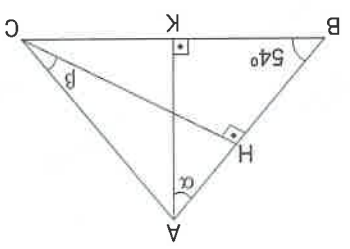
- A) $5\sqrt{2}$ B) $6\sqrt{2}$ C) $7\sqrt{2}$ D) $8\sqrt{2}$ E) $14\sqrt{2}$

6. Bir kenarlı $3\sqrt{5}$ olan eşkenar üçgenin alanı nedir?
 What is the area of the equilateral triangle with an edge $3\sqrt{5}$?

- A) $\frac{45\sqrt{3}}{4}$ B) $45\sqrt{3}$ C) $63\sqrt{3}$ D) $64\sqrt{3}$ E) $\frac{65\sqrt{3}}{4}$

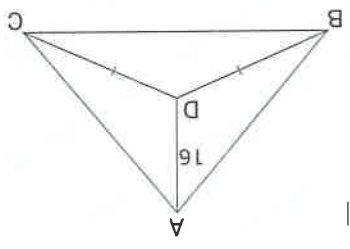


13. $|AB| = |BC|$
 $[CH] \perp [AB]$
 $[AK] \perp [BC]$
 $m(\widehat{ABC}) = 54^\circ$
 $\alpha - \beta = ?$



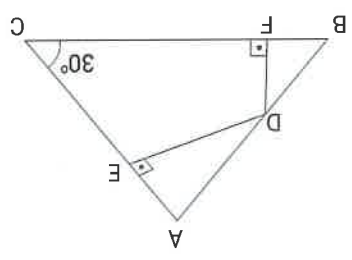
- A) 9 B) 12 C) 13 D) 14 E) 18

16. $|AB| = |AC| = |BC|$
 $|BD| = |DC|$
 $|CD| = 10$
 $|AD| = 16$
 $|BC| = ?$



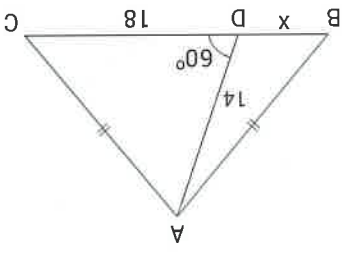
- A) $6 + 8\sqrt{3}$ B) $6 + 4\sqrt{3}$ C) $6 - 4\sqrt{3}$ D) $6 - 2\sqrt{3}$ E) $5 + 2\sqrt{3}$

14. ABC bir üçgen
 $|AC| = |BC|$
 $[DE] \perp [AC]$
 $[DF] \perp [BC]$
 $|DE| = 2\sqrt{2}$
 $|DF| = \sqrt{2}$
 $|BC| = ?$



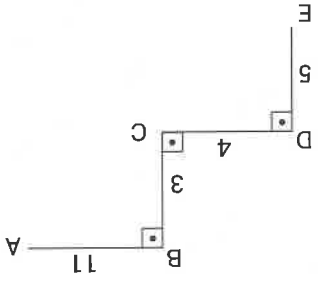
- A) $4\sqrt{2}$ B) $5\sqrt{2}$ C) $6\sqrt{2}$ D) $7\sqrt{2}$ E) $8\sqrt{2}$

15. ABC bir üçgen
 $|AB| = |AC|$
 $m(\widehat{ADC}) = 60^\circ$
 $|AD| = 14$
 $|CD| = 18$
 $x = ?$



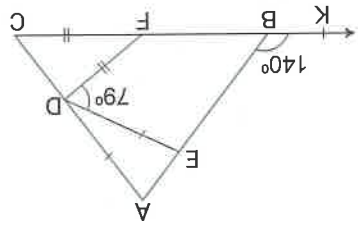
- A) 3 B) 4 C) 5 D) 6 E) 7

18. $[AB] \perp [BC]$
 $[BC] \perp [CD]$
 $[CD] \perp [DE]$
 $|BC| = 3$
 $|DC| = 4$
 $|DE| = 5$
 $|BA| = 11$
 $|AE| = ?$

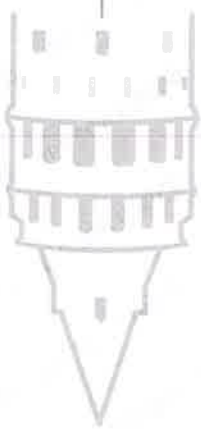


- A) 13 B) 14 C) 15 D) 16 E) 17

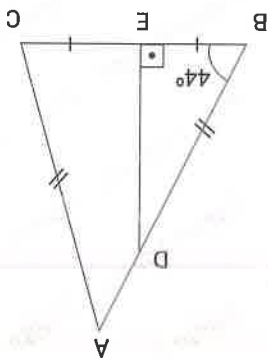
17. $|AD| = |DE|$
 $|DF| = |FC|$
 $m(\widehat{EDF}) = 79^\circ$
 $m(\widehat{ABK}) = 140^\circ$
 $m(\widehat{ACK}) = ?$



- A) 59 B) 60 C) 65 D) 67 E) 69

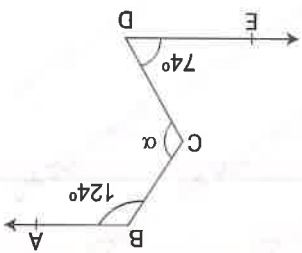


19. $[DE] \perp [BC]$
 $|BD| = |AC|$
 $|BE| = |EC|$
 $m(\widehat{ABC}) = 44^\circ$
 $m(\widehat{ACB}) = ?$



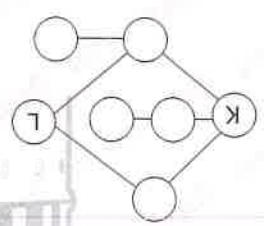
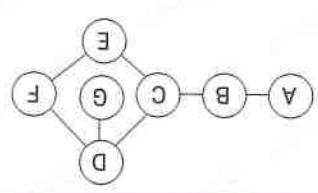
- A) 44 B) 45 C) 47 D) 48 E) 50

20. $[BA] \parallel [DE]$
 $m(\widehat{ABC}) = 124^\circ$
 $m(\widehat{BCD}) = \alpha$
 $m(\widehat{CDE}) = 74^\circ$
 $\alpha = ?$

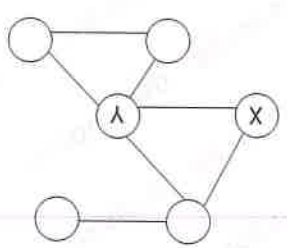
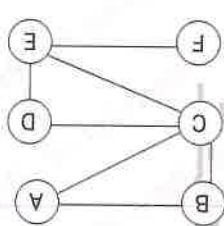


- A) 84 B) 64 C) 120 D) 124 E) 130

- A) D / E / L
- B) C / F
- C) B / G
- D) A / F
- E) D / C

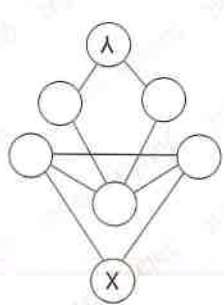
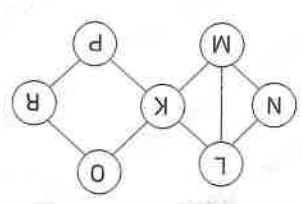


- X / Y
- A) D / A
- B) B / C
- C) A / B
- D) D / C
- E) C / B

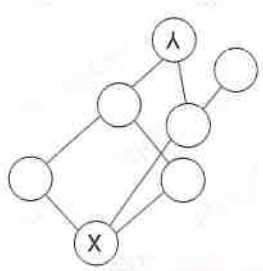
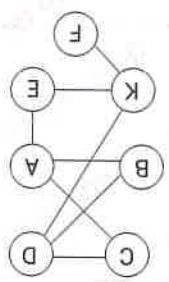


2.

- X / Y
- A) N / R
- B) K / M
- C) R / K
- D) N / P
- E) R / N



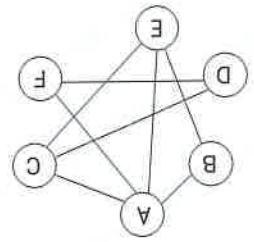
- X / Y
- A) F / C
- B) D / F
- C) E / C
- D) D / E
- E) C / B



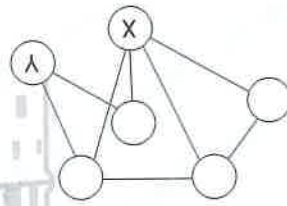
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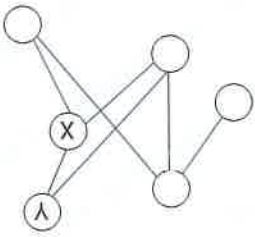
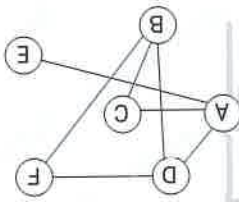
- A) $\frac{X}{Y}$ A B
- B) A D C B
- C) C B E D
- D) E D F
- E) E F



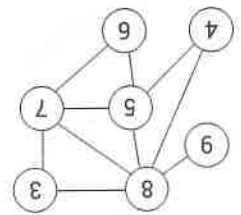
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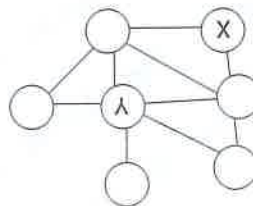
- A) $\frac{E}{C}$ A B C B A F
- B) A F C B F
- C) B F C D B
- D) D B E C F
- E) C F



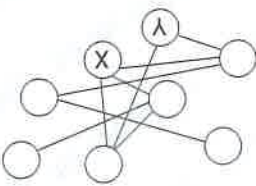
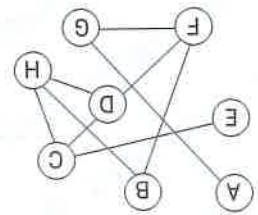
- A) $\frac{8}{4}$ A) 8 4 B) 7 5 C) 6 8 D) 3 4 E) 5 3



5.

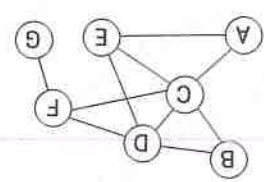


- A) $\frac{C}{H}$ A) C H B) D B C) H B D) D G E) F G



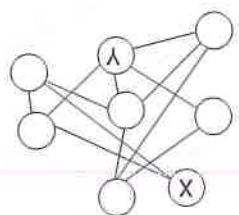
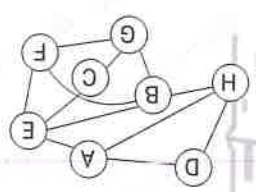
7.

- A) $\frac{X}{Y}$
- B) C B A
- C) E A
- D) E B
- E) G A

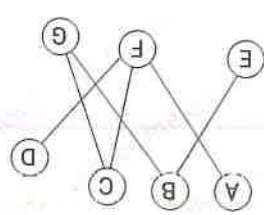


10.

- A) $\frac{X}{Y}$
- B) C B A
- C) H D
- D) D B
- E) D E

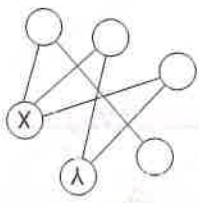
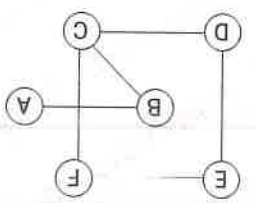


- A) $\frac{X}{Y}$
- B) E F
- C) A B
- D) D C
- E) F C



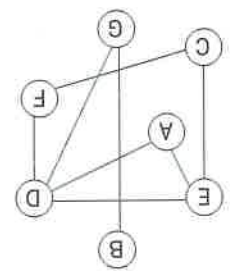
9.

- A) $\frac{X}{Y}$
- B) D E
- C) C F
- D) C E
- E) E C

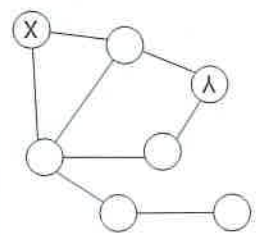


11.

- (E) F D
- (D) A C
- (C) E B
- (B) B A
- (A) D C
- X / Y

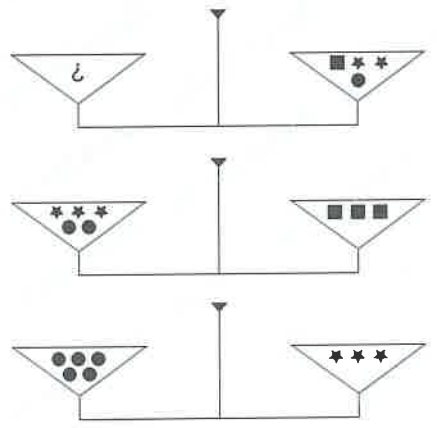


14.

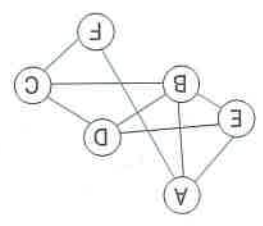


16.

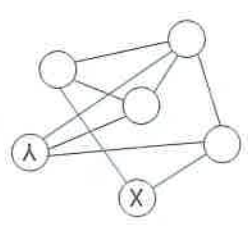
- (A) ***
- (B) ●●■
- (C) ●●●●*
- (D) ■■■■
- (E) ●●●●■



- (E) D
- (D) D F
- (C) F E
- (B) F B
- (A) D A
- X / Y

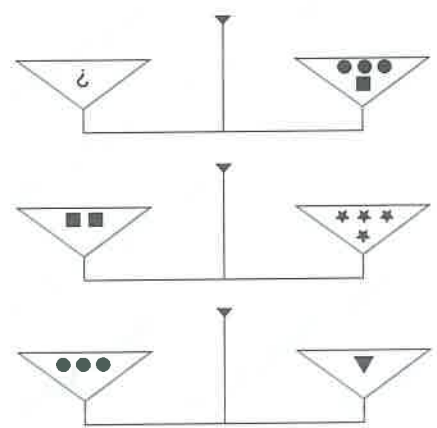


13.

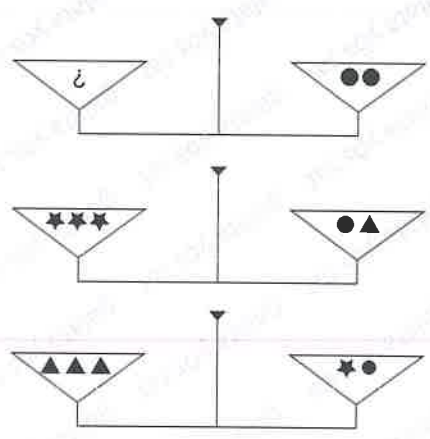


15.

- (A) ***▼
- (B) *●
- (C) *●●■
- (D) ***
- (E) ●■■■

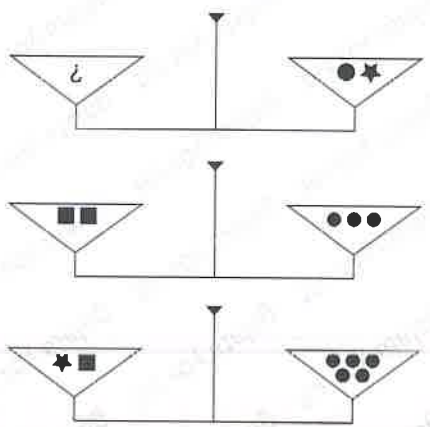


- A) ● ●
- B) ★ ▲
- C) ● ▲
- D) ★ ▲ ▲
- E) ★ ★ ★ ★



18.

- A) ★ ★
- B) ★ ★ ★
- C) ● ● ●
- D) ● ● ● ★
- E) ● ● ● ● ★



17.



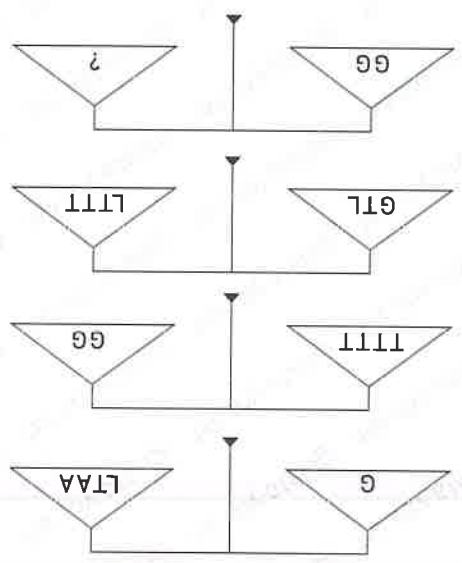
20.

- A) 23
- B) 16
- C) 11
- D) 4
- E) 1

c			
b	81		
a	b+c	28	
x	a	b	c

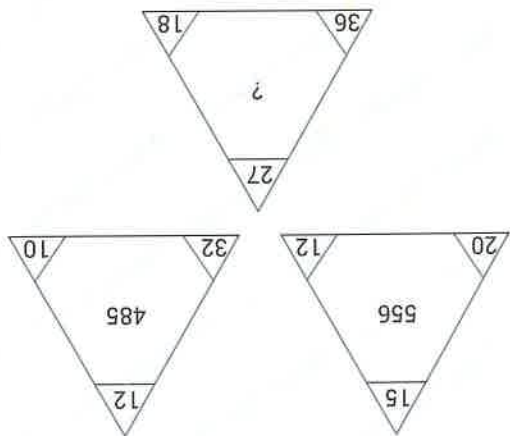
⇒ a = ?

- A) TTAAAL
- B) TTTTA
- C) AAAALL
- D) GTTTT
- E) AATLL



19.

A) 392 B) 966 C) 389 D) 459 E) 999



23.

A) 5 B) 6 C) 7 D) 8 E) 9

6	2	3	?
5	3	7	8
4	2	6	2
3	3	4	5

22.

A) -1 B) 0 C) 1 D) 2 E) 3

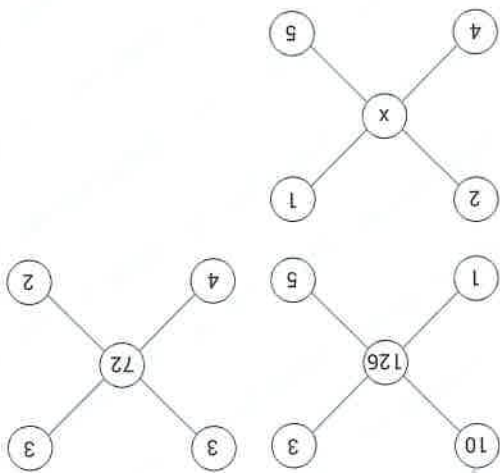
z		4x+2	
y	2z+1		
x			y
+	x	y	z

21.

$\Rightarrow y - x - z = ?$

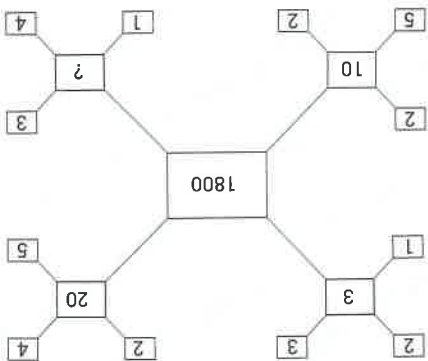
26.

A) 18 B) 21 C) 54 D) 105 E) 121



25.

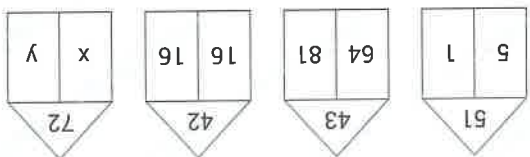
A) 4 B) 6 C) 8 D) 14 E) 17



24.

A) 100 B) 128 C) 79 D) 92 E) 177

$\Rightarrow x + y = ?$



27. $(x \star y) + (x \bullet y) - x^2 - xy$

$(x \bullet y) - (x \star y) = y^2 - xy$

$\Rightarrow 5 \bullet 3 = ?$

- A) 2 B) 5 C) 13 D) 21 E) 27

28. 35, 42, 73, 54, ?

- A) 93 B) 86 C) 27 D) 13 E) 11

G	A	L	A	T	A
3	3	2	3	2	3

\Rightarrow EĞİTİM = ?

- A) 231213 B) 431213 C) 332224 D) 442224 E) 1432124

30. $\left. \begin{matrix} FEBA \\ CAEB \\ ABCD \\ DFDF \\ BEAC \end{matrix} \right\} \Rightarrow \left. \begin{matrix} 7532 \\ 4573 \\ 1414 \\ 2357 \\ 3721 \end{matrix} \right\}$

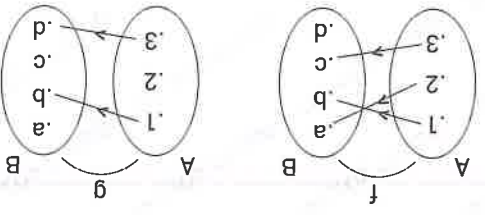
$\Rightarrow CAEB = ?$

A) 7532 B) 4573 C) 1414 D) 2357 E) 3721

A kümesinden B kümesine tanımlanan yukarıdaki f, g, h bağıntılarından hangileri A dan B ye tanımlı bir fonksiyondur ?

Which of the above relations f, g, h defined from set A to set B is a function defined from A to B?

- A) f B) h C) f, g D) f, h E) f, g, h



2. $f: A \rightarrow B$ ve $A = \{-1, 3, 4\}$ olmak üzere $f(x) = 3x - 1$ olduğuna göre f(A) kümesi hangisidir ?

Which set is f(A)?

- A) $\{-4, 10, 3\}$ B) $\{-4, 8, 11\}$ C) $\{-4, 8, 13\}$ D) $\{4, 8, 11\}$ E) $\{4, 8, 13\}$

3. $f(x) = \frac{2x-3}{ax+6}$

fonksiyonu sabit fonksiyon olduğuna göre, a kaçtır ?

since the function is a constant function, what is a ?

- A) 1 B) 2 C) 0 D) -2 E) -4

4. $f(x)$ dogrusal fonksiyondur.

$f(x)$ is a linear function.

$$f(x) + f(x+2) = 4x + 2$$

olduguna göre, $f(x)$ hangisidir ?

accordingly, which of the options is $f(x)$

- A) $2x - 3$ B) $2x - 1$ C) $2x + 1$ D) $2x + 3$ E) $2x + 5$

5. f is an identity function.
 f birim fonksiyondur.

$$f(2x+5) + f(3x-1) = f(4x) + 10$$

esitligini saglayan x degeri kacdir ?

what is the x value that provides the equality ?

- A) 4 B) 5 C) 6 D) 7 E) 8

6. $f: \mathbb{R} \rightarrow \mathbb{R}$

$$f(x) = \begin{cases} 3x+1, & x < 3 \\ x^2-3, & x \geq 3 \end{cases}$$

$$\Rightarrow f(5) - f(-3) + f(-2) = ?$$

- A) 10 B) 15 C) 20 D) 25 E) 30

7. $f: \mathbb{R} \rightarrow \mathbb{R}$

$$f(x) = 7^{x-2}$$

$$\frac{f(3m-2)}{f(2m+1)} = 1 \Rightarrow m = ?$$

- A) 3 B) $\frac{3}{1}$ C) -1 D) -2 E) -3

8. $f: \mathbb{R} - \{0\} \rightarrow \mathbb{R}$

$$f\left(\frac{1}{x}\right) = ? \Rightarrow f\left(\frac{x}{1}\right) = \frac{x^3-6}{x^2-3x} + 3 = \frac{x^3-6}{x^2-3x}$$

- A) x B) $x+2$ C) $x+3$ D) $\frac{1}{x}+2$ E) $\frac{1}{x}+3$

9. $f(x) = 3x-2 \Rightarrow f^{-1}(x) = ?$

- A) $3x+2$ B) $2-3x$ C) $\frac{x}{2} + \frac{3}{2}$ D) $\frac{x}{3} - \frac{2}{3}$ E) $\frac{3x-2}{5}$

10. $f: \mathbb{R} - \{4\} \rightarrow \mathbb{R} - \{2\}$

$$f(a) = \frac{2a-3}{a-4} \Rightarrow f^{-1}(a) = ?$$

- A) $\frac{2a-3}{a+4}$ B) $\frac{a-2}{a-3}$ C) $\frac{4a-3}{a}$ D) $\frac{4a+3}{a-2}$ E) $\frac{4a-3}{a-2}$

11. $f: [3, +\infty) \rightarrow [-4, +\infty)$
 $f(x) = x^2 - 6x + 5 \Rightarrow f^{-1}(5) = ?$

- A) 4 B) 5 C) 6 D) 7 E) 8

15. $f = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 3 & 1 \\ 3 & 1 & 2 \end{pmatrix}$ ve $g = \begin{pmatrix} 3 & 1 & 2 \\ 1 & 2 & 3 \end{pmatrix}$
 $\Rightarrow (f \circ g)^{-1}(1) - (f^{-1} \circ g)^{-1}(2) = ?$

- A) -2 B) -1 C) 0 D) 1 E) 2

12. $f(x) = 2x - 1$, $g(x) = 2x + 3$
 $\Rightarrow (f \circ g)(x) = ?$

- A) $2x + 5$ B) $4x - 5$ C) $4x + 5$
 D) $4x - 3$ E) $2x - 5$

13. $f(3x-1) = x^2$, $g(x-1) = x+4 \Rightarrow (g \circ f)(8) = ?$

- A) 12 B) 13 C) 14 D) 15 E) 16

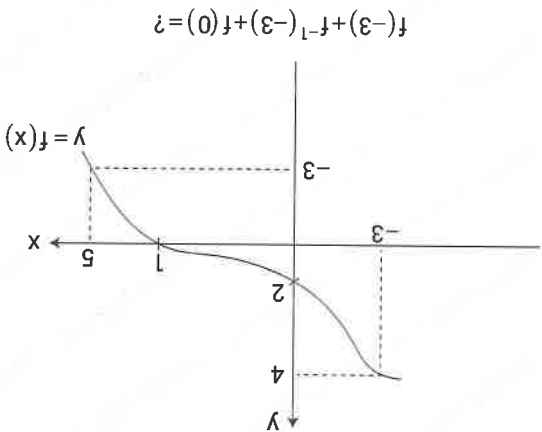
14. $f(x) = 2^{2x-1} + 3 \Rightarrow f^{-1}(19) = ?$

- A) $\frac{1}{2}$ B) $\frac{1}{3}$ C) $\frac{3}{2}$ D) $\frac{2}{5}$ E) $\frac{3}{4}$

17. $\frac{1}{a} + \frac{1}{b} = \frac{1}{1}$, $\frac{1}{a} + \frac{1}{c} = \frac{3}{2}$, $\frac{1}{b} + \frac{1}{c} = \frac{4}{1}$
 $\Rightarrow \frac{1}{1} + \frac{1}{1} + \frac{1}{1} = ?$

- A) $\frac{24}{13}$ B) $\frac{24}{11}$ C) $\frac{11}{12}$ D) $\frac{13}{12}$ E) $\frac{6}{11}$

16.



$$18. \frac{7}{1} < a < \frac{2}{1} \quad \frac{5}{1} \leq b < \frac{3}{1}$$

olduğuna göre, $\frac{a}{1} + \frac{b}{1}$ toplamının alabileceği en büyük tam sayı değeri ile en küçük tam sayı değerinin toplamı kaçtır?

What is the sum of the highest integer value and the smallest integer value that the $\frac{1}{1} + \frac{a}{1}$ sum can take?

- A) 13 B) 14 C) 15 D) 16 E) 18

$$19. A, B, C, \in Z^+ \quad \begin{cases} A = 2^4 \cdot 3^3 \cdot 5^2 \\ B = 2^7 \cdot 3^5 \\ C = 2^2 \cdot 3^4 \cdot 5^3 \end{cases} = \begin{cases} EKOK(A, B, C) \\ EBOB(A, B, C) \end{cases}$$

- A) $2^5 \cdot 2$ B) $2 \cdot 3^2 \cdot 5^2$ C) $2^2 \cdot 3 \cdot 5^3$ D) $2^5 \cdot 3^2 \cdot 5^3$ E) $3 \cdot 5^3$

$$23. \|x - 2\| - 4 = 2 \Rightarrow \sum x = ?$$

- A) 8 B) 10 C) 11 D) 12 E) 16

$$22. \frac{\sqrt{24 - \sqrt{20} - \sqrt{18} + \sqrt{15}}}{\sqrt{32 - \sqrt{24}}} = ?$$

- A) $\frac{\sqrt{6 - \sqrt{5}}}{2}$ B) $\frac{\sqrt{3 + \sqrt{2}}}{4}$ C) $\frac{\sqrt{3 + \sqrt{2}}}{2}$ D) $\frac{\sqrt{3 - \sqrt{2}}}{2}$ E) $\frac{\sqrt{12 - \sqrt{10}}}{4}$

$$21. x, y, z \in R^+$$

$$x \cdot y + x \cdot z = 75$$

$$\frac{y+z}{x} = \frac{3}{4} \Rightarrow x+y+z = ?$$

- A) 15 B) 20 C) 25 D) $\frac{2}{25}$ E) $\frac{2}{35}$

$$24. x, y, z \in Z$$

$$12 < 2^x < 25$$

$$32 < 3^y < 100$$

$$\Rightarrow x+y+z = ?$$

$$16 < 5^z < 40$$

- A) 7 B) 8 C) 9 D) 10 E) 11

- A) 958 B) 960 C) 962 D) 978 E) 982

What is the highest x natural number with three digits to ensure equality?
sayısı kaçtır?
eşitliğini sağlayan üç basamaklı en büyük x doğal

$$x = 3m + 2 = 5n + 2 = 8k + 2$$

$$20. x, m, n, k \in Z^+$$

25. $x+y+z=12$
 $xy+xz+yz=28 \Rightarrow x^2+y^2+z^2=?$

- A) 80 B) 84 C) 88 D) 92 E) 96

28. A, B ve C birer küme olmak üzere, A, B and C are sets.
 I. $A \cup B = A \cup C \Rightarrow B = C$ dir
 II. $A \cap B = \emptyset \Rightarrow A \setminus B = A$ dir
 III. $A \cup B = A \Rightarrow B \setminus A = \emptyset$ dir
 önermelerinden hangileri her zaman doğrudur ?
 which of the propositions are always true ?

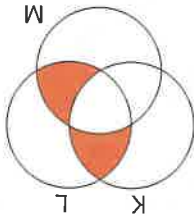
- A) I B) II C) III
 D) I ve II E) II ve III

26. Bir A kümesinin 3 ten az elemanlı alt kümelerinin sayısı 29 ise A kaç elemanlıdır ?

If the number of subsets of an A set with less than 3 elements is 29, how many elements does A have ?

- A) 10 B) 8 C) 7 D) 12 E) 15

29.



Taralı bölge hangisine eşittir ?
 Shaded area = ?

- A) $K \cap L \cap M$
 B) $(K \cap L) \cup M$
 C) $(M \cap L) \cup K$
 D) $(K \cap M) \cup (K \cap L \cap M)$
 E) $(L \cap (K \cup M)) \cup (K \cap L \cap M)$

kapalı aralıkları için $(X \cup Y) \cap Z$ kümesinin eleman sayısı kaçtır ?
 What is the number of elements of the set ?

27. $X = \left[-\frac{2}{3}, \sqrt{5} \right], Y = \left[\sqrt{3}, \frac{3}{16} \right]$

(Z, Tam sayılar kümesidir)
 (Z is a set of integers)

- A) 4 B) 5 C) 6 D) 7 E) 8

What is the minimum number of elements of set $A \cup B$ kaçtır ?

olduğuna göre, $A \cup B$ kümesinin eleman sayısı en az

$3 \cdot s(A-B) = 4 \cdot (A \cap B) = 5 \cdot s(B-A)$

30. $A \neq \emptyset, B \neq \emptyset$

- A) 12 B) 27 C) 35 D) 47 E) 60

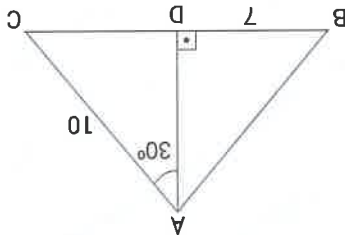
1. $[AD] \perp [BC]$

$m(\widehat{DAC}) = 30^\circ$

$|BD| = 7$

$|AC| = 10$

$A(\widehat{ABC}) = ?$



- A) $30\sqrt{3}$ B) $24\sqrt{3}$ C) $20\sqrt{3}$ D) 35 E) 70

2. $[DE] \parallel [AB]$

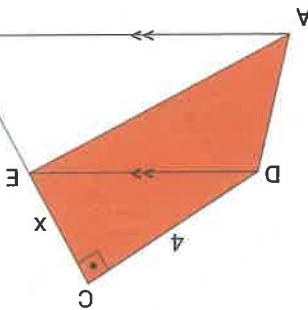
$|CD| = 4$

$|EB| = 5$

$A(\widehat{ECD}) = 28$

$x = ?$

- A) 7 B) 8 C) 9 D) 10 E) 14



4.

ABC bir üçgen

$[DA] \perp [AC]$

$|AB| = |AE|$

$|BD| = 3$

$|EC| = 4$

$|DE| = 7$

Taralı alanlar

toplamı kaçtır ?

what is the sum of the shaded areas ?

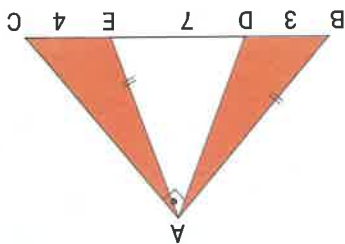
A) $10\sqrt{2}$

B) $11\sqrt{2}$

C) $\frac{21\sqrt{2}}{2}$

D) $20\sqrt{2}$

E) $14\sqrt{2}$



6.

A, C, E noktalar doğrusal

$[AB] \perp [BD]$

$|AC| = \sqrt{5}|AB|$

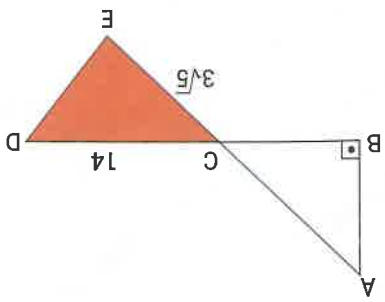
$|CE| = 3\sqrt{5}$

$|CD| = 14$

Taralı alan = ?

Shaded area = ?

- A) 17 B) 19 C) 20 D) 21 E) 24



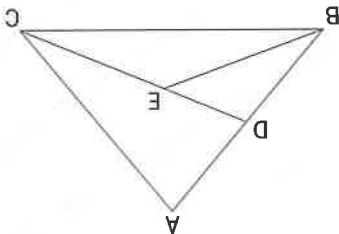
3.

$\frac{|AD|}{|AB|} = 5$

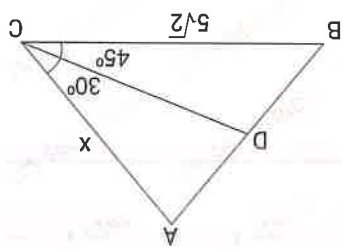
$\frac{|DE|}{|DC|} = \frac{1}{4}$

$\frac{A(\widehat{BEC})}{A(\widehat{ADC})} = ?$

- A) 3 B) 4 C) 5 D) 6 E) 7

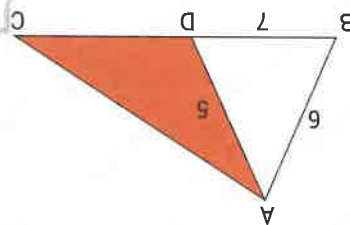


7. ABC bir üçgen
 $m(\widehat{ACD}) = 30^\circ$
 $m(\widehat{DCB}) = 45^\circ$
 $|BC| = 5\sqrt{2}$
 $2A(\widehat{BDC}) = 3A(\widehat{ADC})$
 $x = ?$



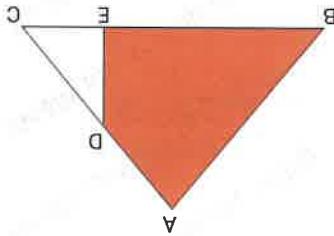
- A) $\frac{3}{10}$ B) $\frac{3}{11}$ C) 4 D) $\frac{3}{13}$ E) $\frac{3}{20}$

8. ABC bir üçgen
 $|AD| = 5$
 $|AB| = 6$
 $|BD| = 7$
 $|DC| = 2|BD|$
 $A(\widehat{ADC}) = ?$



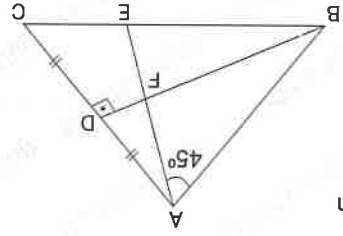
- A) $5\sqrt{6}$ B) $6\sqrt{6}$ C) $8\sqrt{6}$ D) $10\sqrt{6}$ E) $12\sqrt{6}$

9. $|DC| = 2|AD|$
 $|BC| = 3|EC|$
 $A(\widehat{ABC}) = 18$
 $A(\widehat{ABED}) = ?$



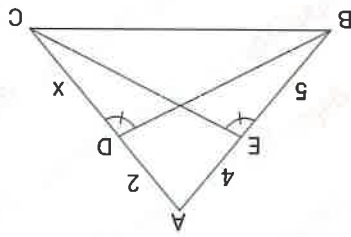
- A) 12 B) 13 C) 14 D) 15 E) 16

12. ABC; eşkenar üçgen
 eşkenar üçgen
 $|AD| = |DC|$
 $m(\widehat{BAE}) = 45^\circ$
 $\frac{|BF|}{|BE|} = ?$



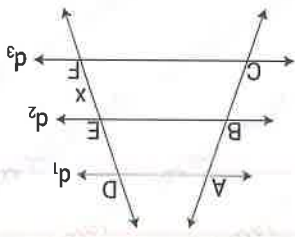
- A) 1 B) 2 C) 3 D) 4 E) 5

11. $m(\widehat{BEC}) = m(\widehat{BDC})$
 $|AD| = 2$
 $|AE| = 4$
 $|BE| = 5$
 $|CD| = x = ?$



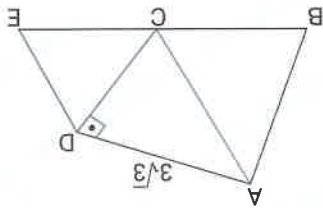
- A) 12 B) 14 C) 15 D) 16 E) 18

10. $d_1 // d_2 // d_3$
 $|AB| = 4|BC|$
 $|DF| = 25$
 $|EF| = x = ?$



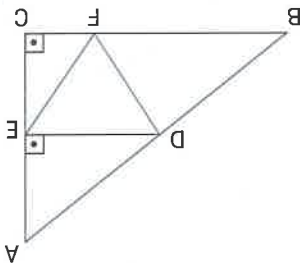
- A) 5 B) 10 C) 15 D) 20 E) 24

13. ABC; eşkenar üçgen
 CDE; eşkenar üçgen
 eşilateral triangle
 AD = 3√3
 [AD] ⊥ [CD]
 Ç(ABED) = ?



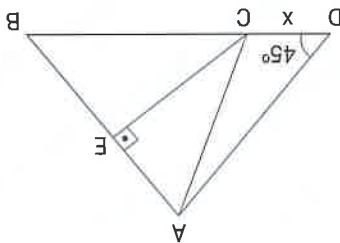
- A) 18 + 3√3
 B) 18 - 3√3
 C) 3√3 + 9
 D) 3√3 + 27
 E) 9 - 3√3

14. [AC] ⊥ [BC]
 [AC] ⊥ [DE]
 DEF; eşkenar üçgen
 eşilateral triangle
 DE = 2√3
 BD = 6
 BC = ?



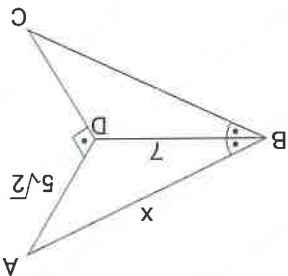
- A) 3√3
 B) 4√3
 C) 5√3
 D) 6√3
 E) 7√3

15. |AB| = |CB|
 [AB] ⊥ [CE]
 m(ADB) = 45°
 |AE| = 4
 |CE| = 6
 x = ?



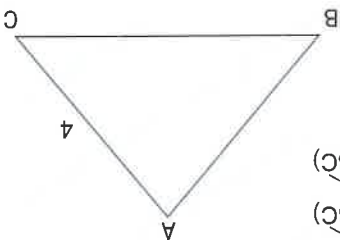
- A) 1
 B) 2
 C) 3
 D) 4
 E) 5

16. m(ABD) = m(DBC)
 |AB| = |BC| = x
 [AD] ⊥ [DC]
 |AD| = 5√2
 |BD| = 7
 x = ?



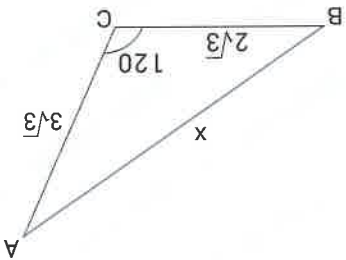
- A) 10
 B) 11
 C) 12
 D) 13
 E) 14

17. m(BAC) = 3 m(ABC)
 m(ACB) = 2 m(ABC)
 |AC| = 4
 A(ABC) = ?

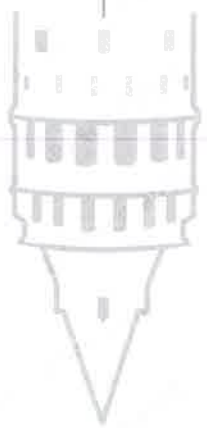


- A) 5
 B) 5√3
 C) 6
 D) 10
 E) 8√3

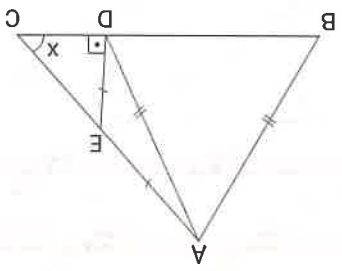
18. m(ACB) = 120°
 |BC| = 2√3
 |AC| = 3√3
 x = ?



- A) √40
 B) √57
 C) √59
 D) √65
 E) √67

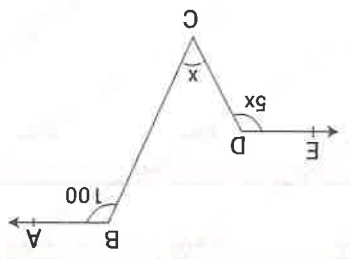


19. ABC bir üçgen
 $[ED] \perp [BC]$
 $|AE| = |ED|$
 $|AB| = |AD|$
 $m(\widehat{BAD}) = 40^\circ$
 $x = ?$



- A) 40
- B) 45
- C) 50
- D) 55
- E) 60

20. $[BA] \parallel [ED]$
 $m(\widehat{ABC}) = 100$
 $m(\widehat{BCD}) = x$
 $m(\widehat{CDE}) = 5x$
 $x = ?$



- A) 20
- B) 30
- C) 40
- D) 50
- E) 60

Başarıya Götüren



Mat	Problem / Problems
Mat	Problem / Problems
Mat	Problem / Problems

Mat	Problem / Problems
Mat	Problem / Problems
Mat	Problem / Problems

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Mat	Problem / Problems

Mat	Problem / Problems
Mat	Problem / Problems
Mat	Problem / Problems

KTS-12

Mat	İşlem / Operation
IQ	Denklem Eşitleme / Equation Matching
Geo	Üçgenin Açı Kenar Bağıntısı / Angle-Side Relation in Triangle

Mat	Karşıya Çarpımı ve Fonksiyonlar / Cartesian Product and Functions
IQ	Eşleştirme / Matching
Geo	Üçgenin Alan / Area of Triangles

Mat	Kümeler / Sets
IQ	Oranlar / Scales
Geo	Üçgenin Alan / Area of Triangles

Mat	Doğal Sayılar / Natural numbers
IQ	Sayı Bağıntıları/Number Relations
Geo	Kenarortay / Medium

Mat	Sayılar / Numbers
IQ	Tablolar / Tables
Geo	Üçgenin Benzerlik / Similarity in Triangles

Mat	Oran Orantı / Ratio and Proportion
IQ	Tablolar / Tables
Geo	Üçgenin Benzerlik / Similarity in Triangles

Mat	Basit Eşitsizlik ve Mutlak Değer / Simple Inequality and Absolute Value
IQ	Sayı Bağıntıları / Number Relations
Geo	Açıortay / Bisector

Mat	Çarpım Ayrımı / Factorization
IQ	İşlemler / Operations
Geo	İkizkenar ve Eşkenar Üçgen / Isosceles and Equilateral Triangle

Mat	Kökü Sayılar / Radical Expressions
IQ	İşlemler / Operations
Geo	Üçgen (Öklid) / Right triangle

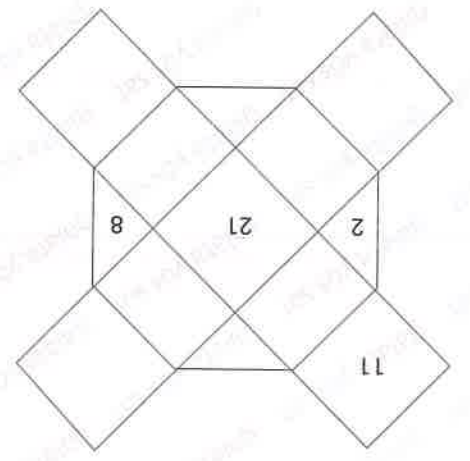
Mat	İşlem Oranları ve Rasyonel Sayılar / Order of operations and Rational Numbers
IQ	Şifreler / Passwords
Geo	Açılar / Angles

Mat	Birinci Dereceden Denklemler / First-Degree equations
IQ	Sayı Örüntüleri / Number patterns
Geo	Üçgenin Açıları / Angles in triangles

Mat	Üçgenin Alanı / Area of Triangles
IQ	Sayı Örüntüleri / Number patterns
Geo	Üçgen (Öklid) / Right triangle

- A) 36 B) 21 C) 14 D) 8 E) 2

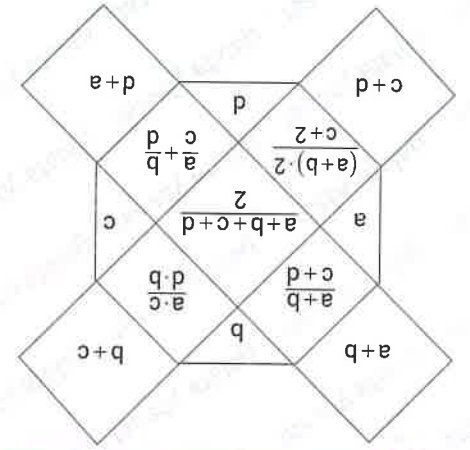
$$\frac{b+d}{a \cdot c} = ?$$



1.

Şekildeki a, b, c, d harfleriyile gösterilen dört tam sayı gösterdiği sayılar her soruda farklı olabilir. Ama bunlarla yapılacak işlemler her soruda aynıdır. Aşağıdaki 1, 2, 3 soruları bu şekle göre çözülecektir.

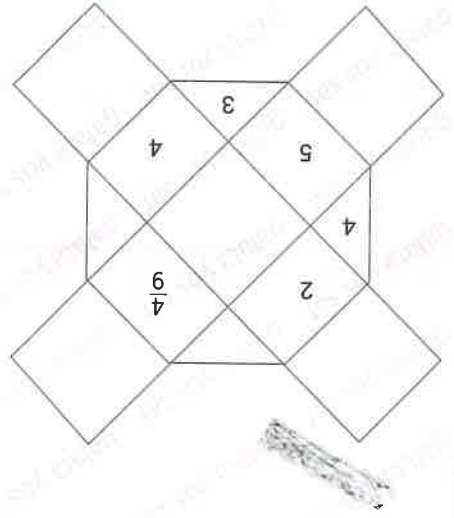
a, b, c, d comprising four integers represented by the letter are arranged according to various operations. The numbers shown by the letters can be different in each question. But the operations to be done with them are the same in every question. The following 1, 2, 3 questions will be solved according to this figure.



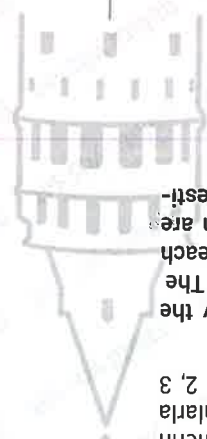
Özellik Feature

- A) 30 B) 45 C) 70 D) 95 E) 120

$$a \cdot b + c \cdot d = ?$$



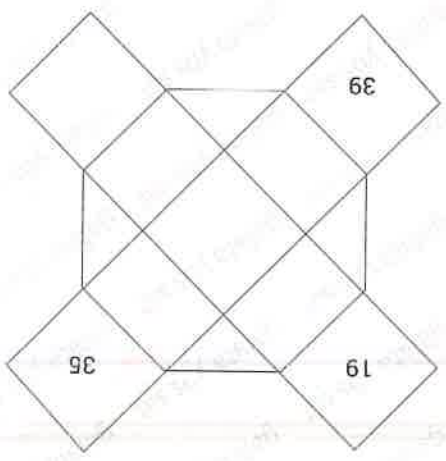
3.



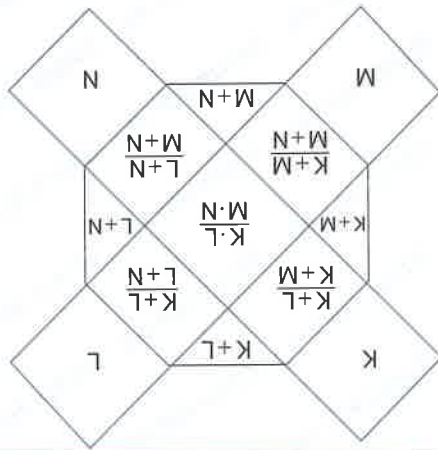
- A) 418 B) 226 C) 112 D) 93 E) 51

$$a+c=30$$

$$= a \cdot d = ?$$



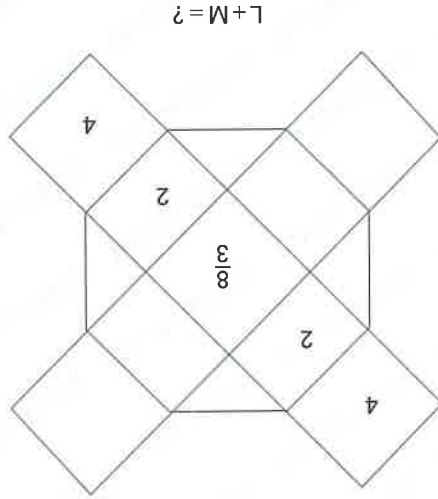
2.



Şekildeki K, L, M, N harfleriyile gösterilen dört tam sayıyı içeren bazı işlemlere göre düzenlenmiştir. Harflerin gösterdiği sayılar her soruda farklı olabilir. Aşağıdaki 4, 5, 6 soruları bu şekle göre çözülecektir.

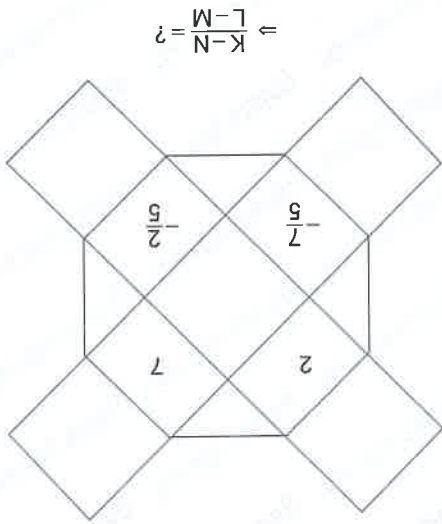
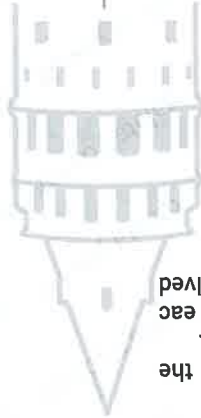
K, L, M, N comprising four integers represented by the letters are arranged according to various operations. The numbers shown by the letters can be different in each question. But the operations to be done with be solved according to this figure.

4.

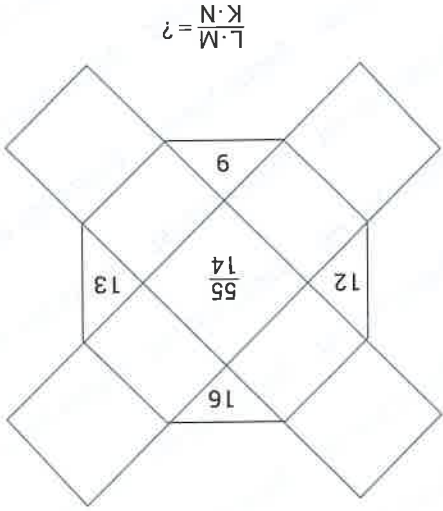


- A) 96 B) 64 C) 24 D) 22 E) 16

6.



- A) $\frac{7}{12}$ B) $\frac{7}{8}$ C) $-\frac{5}{6}$ D) $-\frac{5}{13}$ E) $-\frac{4}{21}$



- A) 8,6 B) 7,7 C) 6,5 D) 4 E) 3

- A) $\frac{5}{7}$ B) $\frac{3}{7}$ C) $\frac{7}{3}$ D) $\frac{7}{5}$ E) $\frac{21}{10}$

$$\Rightarrow k = ?$$

	$\frac{7}{9}$	
	k	11
16		
	$\frac{5}{6}$	

8.

- A) 78 B) 82 C) 86 D) 92 E) 96

$$\Rightarrow a \cdot d + b \cdot c = ?$$

	56	
30		
	7	
6		

7.

Aşağıdaki 7 – 9 soruları tabloya göre çözünüz.
Solve the 7 – 9 question below according to the table.

c	$\frac{c}{d}$	c
a·c	$\frac{a \cdot b}{c \cdot d}$	$\frac{a+b}{2}$
b·d		$\frac{c+d}{2}$
	$\frac{b}{a}$	b

Özellik Feature

9.

$$\Rightarrow a = ?$$

	$\frac{5}{4}$	
	$\frac{16}{11}$	50
	$\frac{5}{11}$	

- A) 5 B) 8 C) 10 D) 11 E) 13

Özellik Feature

Aşağıdaki 10 – 11 soruları bu tabloya göre çözünüz.
Solve the 10–11 questions below according to the table.

c	c·d	d
a·c	$\frac{a+b}{c+d}$	b·d
a	a·b	b

$$\Rightarrow a \cdot b \cdot c \cdot d = ?$$

c	18	d
3		12
a	2	b

- A) 21 B) 24 C) 27 D) 36 E) 45

10.

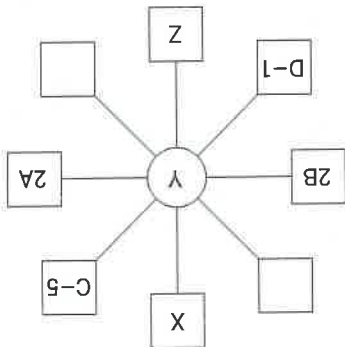
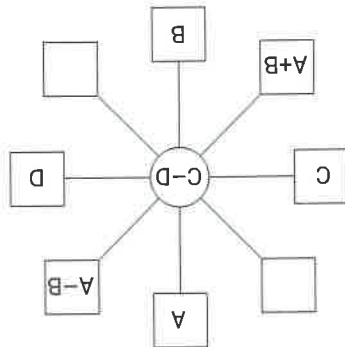
11.

	$4a^3$	
$12a^2$	$\frac{3}{2}$	a^3
	$3a^2$	

$\Rightarrow a = ?$

- A) 2 B) 4 C) 6 D) 8 E) 10

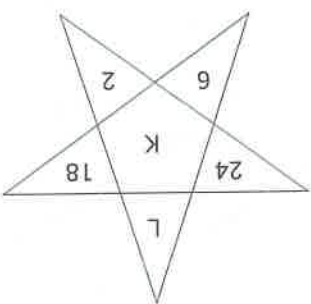
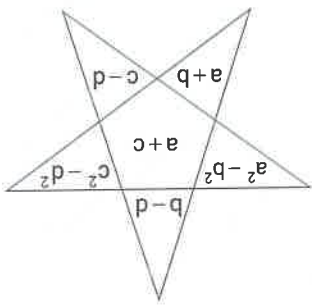
12.



$X+Y+Z=?$

- A) 5 B) 6 C) 7 D) 8 E) 9

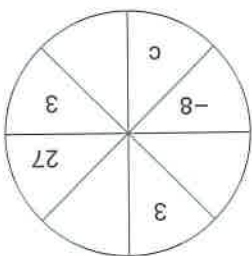
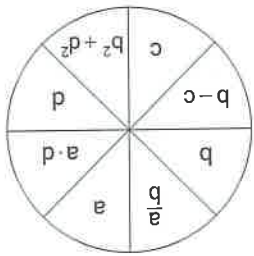
13.



$\Rightarrow K+L=?$

- A) 7 B) 8 C) 18 D) 28 E) 18

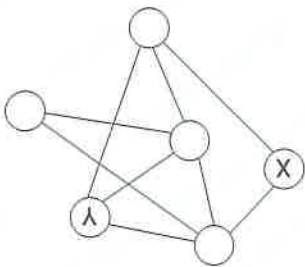
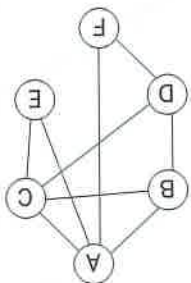
14.



$\Rightarrow c = ?$

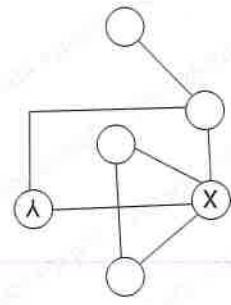
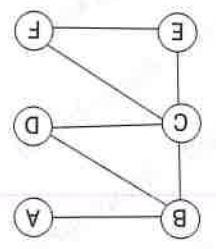
- A) 11 B) -11 C) 8 D) -8 E) 9

15.



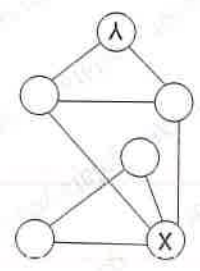
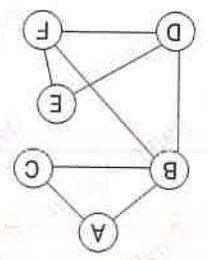
- X Y
A) A F
B) E F
C) F B
D) F D
E) D F

- E) C E
- D) C D
- C) E D
- B) D E
- A) D C
- X / Y



17.

- E) B E
- D) D A
- C) B A
- B) D E
- A) B C
- X / Y



16.

16. II. Şekildeki X ve Y yerine hangi harfler gelir ?
Which letters replace X and Y in the second figure?

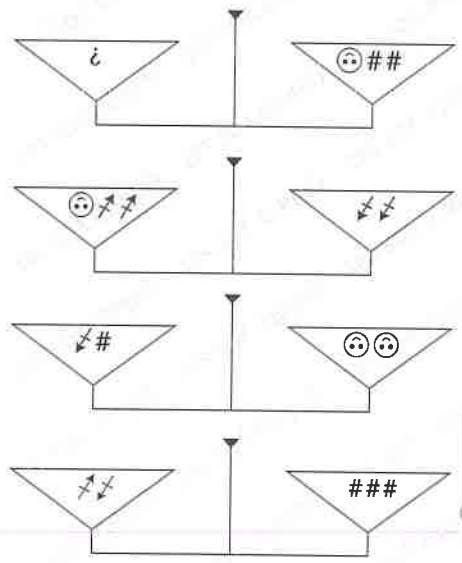
A) //

D) // //

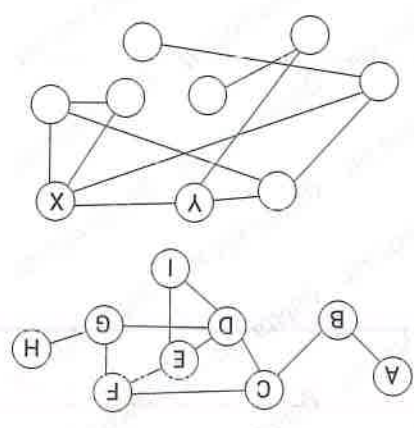
B) // //

E) // //

C) // //



- E) F B
- D) C D
- C) D C
- B) D G
- A) E C
- X / Y



18.

- A) 10 B) 20 C) 25 D) 28 E) 30

24.

4	5
2	11

6	1
3	7

7	L
4	23

$K+L=?$

- A) 2 B) 3 C) 4 D) 5 E) 6

$K=?$

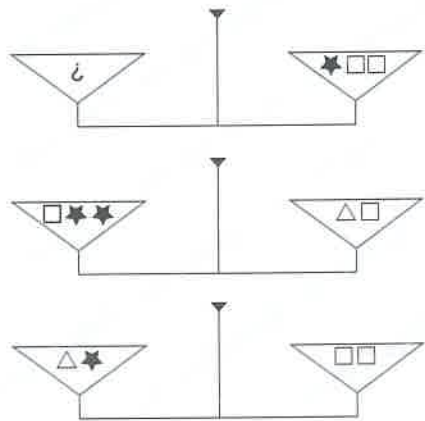
5	2	5	2
2	3	K	5
4	6	4	3
1	8	3	4

- A) 2 B) 3 C) 5 D) 7 E) 9

$\Rightarrow x=?$

3	2	3	x
6	3	2	6
2	3	5	2
2	1	4	6

22.



20.

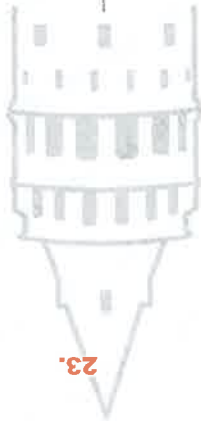
- A) ★△ B) △□ C) ★★ D) □★ E) △△

- A) $8\sqrt{3}$ B) $7\sqrt{3}$ C) $6\sqrt{3}$ D) 121 E) 144

$\Rightarrow K+L+M=?$

M	48
L	147
K	75
$(+)^2$	K L M

21.



23.

1. $a \square b = a^2 - b^2 \Rightarrow (3 \square 2) \square 4 = ?$
 A) 9 B) 12 C) 18 D) 25 E) 45

2. $x \Delta y = x \cdot y - 3(y \Delta x) \Rightarrow 5 \Delta (-1) = ?$

A) 7 B) 5 C) $\frac{5}{1}$ D) $-\frac{4}{5}$ E) $-\frac{5}{6}$

3. $x * y = \begin{cases} x + y, & x > y \\ x - y, & x \leq y \end{cases}$
 $\Rightarrow (1 * 1) * (2 * 1) = ?$

A) 0 B) -1 C) -2 D) -3 E) -5

4. $\forall a \in \mathbb{R}$

$\triangle a = 1 - a$ biçiminde tanımlanıyor.

Buna göre (Açıkça) $\triangle(x-2) = 3/\triangle(x-1) \Rightarrow x = ?$

A) $-\frac{2}{1}$ B) $-\frac{5}{2}$ C) $\frac{3}{5}$ D) $\frac{7}{5}$ E) $\frac{7}{2}$

5.

*	a	b	c	d	e
a	b	c	d	e	a
b	c	d	e	a	b
c	d	e	a	b	c
d	e	a	b	c	d
e	a	b	c	d	e

$(x^{-1} * d)^{-1} = a^{-2} \Rightarrow x = ?$

A) a B) b C) c D) d E) e

6. Reel sayılar kümesinde
 in the of real numbers

$a \Delta b = a + b - 3ab$ tanımlanmıştır.

Buna göre " Δ " işleminin etkisiz elemanı kaçtır?

Accordıngly, what is the identity element of the

operation " Δ "

A) 1 B) 2 C) 3 D) 4 E) 0

7. $a \square b = a + b + 3 \Rightarrow 5^{-1} = ?$

(5^{-1} : 5'in \square işlemine göre tersi)

inverse of the operation

A) 11 B) 7 C) 0 D) -5 E) -11

8. $x \circ y = x + y + 4xy$

İşleminin yutucu elemanı kaçtır ?

What is the null element of the operation?

- A) $-\frac{1}{2}$ B) $-\frac{4}{1}$ C) $\frac{2}{1}$ D) $\frac{4}{1}$ E) $\frac{8}{1}$

9. $a \circ b = \max\{a^b, a \cdot b\}$

$3 \circ 2 = ?$

- A) 3 B) 6 C) 8 D) 9 E) 12

10. $x^3 * y^3 = (x-y) \cdot (x^2 + xy + y^2) + 6$

$\Rightarrow 17 * 15 = ?$

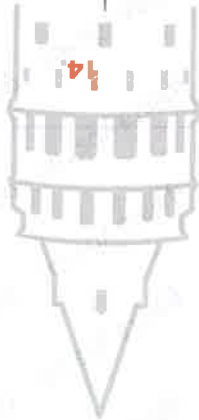
- A) 8 B) 12 C) 24 D) 32 E) 36

11. $x \circ y = \text{OKEK}(x, y)$

$a \Delta b = \text{OBEB}(a, b)$

$(16 \square 24) \Delta (36 \square 60) = ?$

- A) 6 B) 8 C) 12 D) 16 E) 20



13. $x^{xy} \Delta y^{2x} = x^2 + y^2 - xy$

$\Rightarrow 64 \Delta 81 = ?$

- A) 4 B) 5 C) 6 D) 7 E) 8

12. $\frac{x+1}{2} \Delta \frac{y-1}{3} = 4x^2 + 3xy + 1$

$\Rightarrow \frac{1}{2} \Delta 3 = ?$

- A) 125 B) 126 C) 127 D) 129 E) 130

$x \circ y = 3x - 2y + xy$

$\Rightarrow f^{-1}(1 \square 2) = ?$

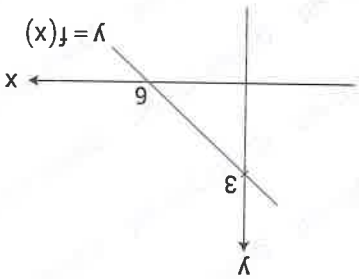
- A) 1

- B) 2

- C) 3

- D) 4

- E) 5



15. 60 sayısının pozitif tam sayı bölenlerinin toplamı kaçtır? What is the sum of the positive integer divisors of the number 60?
 A) 160 B) 168 C) 180 D) 218 E) 240

19. $\left[\left(3 + \frac{4}{1} \right) : \left(\frac{0,9}{0,9} \right) \right] + \frac{2}{1} = ?$

- A) $\frac{4}{3}$ B) $\frac{6}{5}$ C) 20 D) 2 E) 33

16. $2x^2 + 7x - 15 : 2x^2 + 5x + 3 = ?$

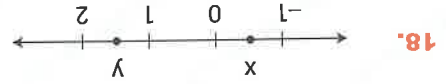
- A) $\frac{2x-3}{x+1}$ B) $\frac{2x+3}{x-1}$ C) $\frac{3x-1}{x+5}$ D) $\frac{2x-3}{3x+1}$ E) $\frac{3x-1}{x+1}$

17. $\frac{\sqrt[4]{5x+1}}{\sqrt[3]{215x-9y}} = 128 = y = ?$

- A) 7 B) 6 C) 5 D) 4 E) 2

21. $\begin{cases} 6x-y+1=9 \\ 6z+x-y-5=4 \end{cases} \Rightarrow x = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5



$x, y \in \mathbb{R} \Rightarrow \frac{5||x|-|y-x||}{|x-|y+x||} = ?$

- A) -5 B) 5y C) 5x D) 5 E) 10

22. Rakamları farklı üç basamaklı üç sayının aritmetik ortalaması 124 tür.

The arithmetic mean of the different three number, with different 3 digits, is 124

Buna göre, bu sayıların en büyüğü en çok kaç olabilir
 Accordingly, how maximum possible can be the highest number?

- A) 163 B) 164 C) 165 D) 167 E) 169

23. $s(B-A)=6$

$s(B-A')=4$

$s(A \cup B)=13$

olduğuna göre, $A \cap B$ kümesinin alt kümelerinin sayısı kaçtır ?

what is the number of subsets of $A \cap B$ set?

- A) 7 B) 8 C) 15 D) 16 E) 24

24. $\beta = \{(x,y) : 2x+3y=10 \text{ ve } (x,y) \in \mathbb{R}\}$ bağıntısı veriliyor.

Relation is given.

Buna göre $\beta \cap \beta^{-1}$ aşağıdakilerden hangisidir ?
Accordingly, which of the following is $\beta \cap \beta^{-1}$?

A) $\{(0,5), (5,0)\}$

B) $\{(0,0)\}$

C) $\{(2,7), (7,2)\}$

D) $\{(2,2)\}$

E) $\{(6,2), (2,6)\}$

A x B ifadesinin analitik düzlemde belirttiği bölgenin alanı kaç br^2 dir ?

What is the area of the region indicated by the expression A x B on the analytical plane?

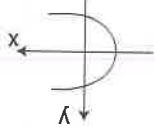
- A) 40 B) 60 C) 80 D) 100 E) 120

$B = \{x : |x+2| \leq 5 \text{ ve } x \in \mathbb{R}\}$

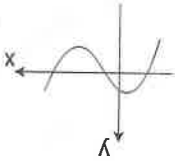
$A = \{x : |x-7| \leq 4 \text{ ve } x \in \mathbb{R}\}$

25.

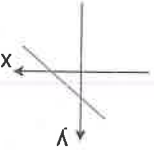
A)



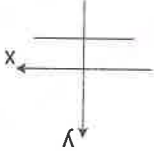
C)



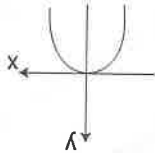
B)



D)



E)



27.

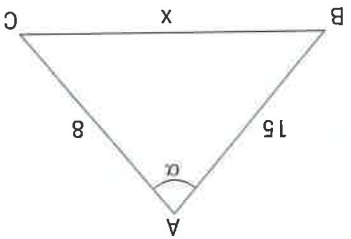
Aşağıda grafiği verilen reel sayılarda tanımlı bağıntılardan hangisi fonksiyon değildir ?

Which of the relations defined in the real numbers given below is a function ?

26. $f(2x-1) = 3x+5$ ve $f^{-1}(2m-5) = 11$

$\Leftrightarrow m = ?$

- A) 5 B) 7 C) 9 D) 12 E) 14



1. x ' in tanım aralığı nedir ?
What is the domain of x ?

$$m(\widehat{BAC}) < 90^\circ$$

$$|AC| = 8$$

$$|AB| = 15$$

- A) $[7, 23]$ B) $(7, 23)$ C) $[15, 23]$ D) $(7, 17)$ E) $(8, 15)$

- A) 5 B) 4 C) 3 D) 2 E) 1

$$f(a+1) = (a+1) f(a)$$

$$f(5) = 60 \Rightarrow f(2) = ?$$

28. $a \in \mathbb{N}^+$ olmak üzere

$$f(x) = |x - 8|$$

$$g(x) = \frac{x}{x+1}$$

$$= (\log^{-1})(3) = ?$$

- A) 8 B) 7 C) 5 D) 3 E) 1

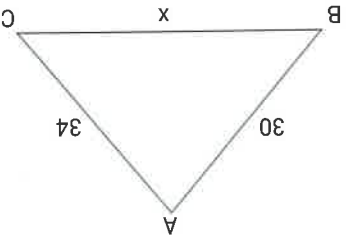
2. $x \in \mathbb{Z}^+$

$$m(\widehat{ABC}) > 90^\circ$$

$$|AC| = 34$$

$$|AB| = 30$$

$$x \text{ max} = ?$$



- A) 18 B) 17 C) 16 D) 15 E) 14

30. \mathbb{R} de tanımlı f ve g fonksiyonları için For f and g functions defined in \mathbb{R}

$$(f+g)(x) = x^2$$

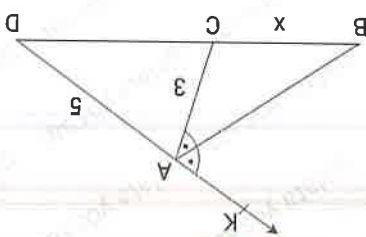
$$(f-g)(2x) = x$$

eşitlikleri veriliyor. Buna göre, $f(4) \cdot g(4) = ?$

equations are given. Accordingly what is $f(4) \cdot g(4)$

- A) 63 B) 60 C) 54 D) 51 E) 45

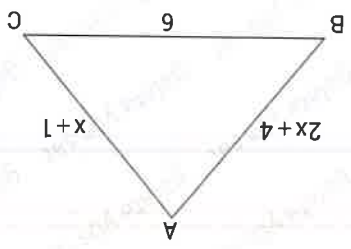
3. $x \in Z$
 K,A,D doğrusal
 K,A,D lineal
 $m(\widehat{KAB}) = m(\widehat{BAC})$
 $|AC| = 3$
 $|AD| = 5$
 $|BC| = x$
 $x \min = ?$



- A) 1 B) 2 C) 3 D) 4 E) 5

6.

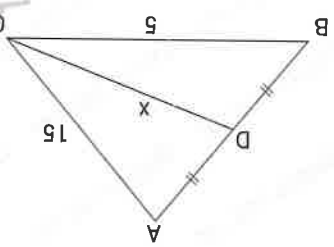
$\hat{C}(\widehat{ABC}) \in Z$
 $|AC| = x + 1$
 $|AB| = 2x + 4$
 $|BC| = 6$
 $\min(\widehat{ABC}) = ?$
 $\min(\widehat{ABC}) \text{perimeter} = ?$



- A) 10 B) 11 C) 12 D) 13 E) 14

4. ABC bir üçgen

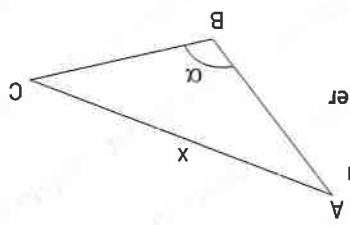
$|AD| = |DB|$
 $|BC| = 5$
 $|AC| = 15$
 x 'in kaç farklı tam sayısı değeri vardır?
 How many different integer values does x have?



- A) 1 B) 2 C) 3 D) 4 E) 5

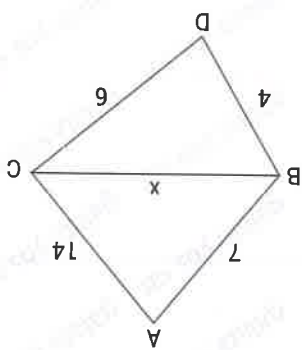
7.

$|AB| = |BC| = 10$
 $90^\circ < \alpha < 120^\circ$
 $|AC| = x$ kaç farklı tam sayısı değeri alır?
 How many different integer values does x have?



- A) 3 B) 4 C) 5 D) 6 E) 7

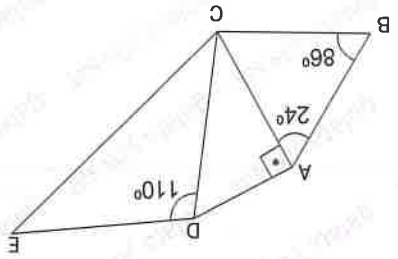
5. $x \in Z$
 $|BD| = 4$
 $|DC| = 6$
 $|AB| = 7$
 $|AC| = 14$
 $|BC| = x$
 $x \max - x \min = ?$



- A) 1 B) 2 C) 3 D) 4 E) 5

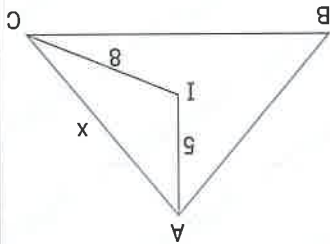
8.

$m(\widehat{ABC}) = 86^\circ$
 $m(\widehat{BAC}) = 24^\circ$
 $m(\widehat{CAD}) = 90^\circ$
 $m(\widehat{CDE}) = 110^\circ$
 en uzun kenar hangisidir
 which is the longest edge?

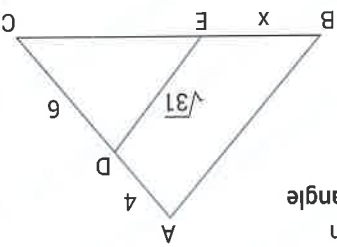


- A) |AC| B) |CD| C) |CE| D) |AB| E) |BE|

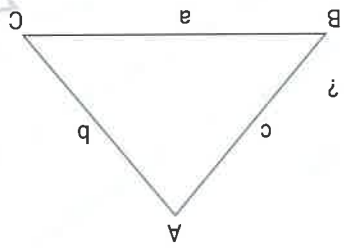
9. I : içteğet gemberinin merkezi
Center of inner circle
 $|AI| = 5$
 $|IC| = 8$
 $|AC| = x$ kaç farklı tamsayı
değeri alır ?
How many different integer
values does x have?
A) 6 B) 5 C) 4 D) 3 E) 2



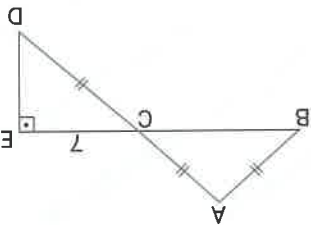
12. ABC, eşkenar üçgen
ABC, equilateral triangle
 $|AD| = 4$
 $|DC| = 6$
 $|DE| = \sqrt{31}$
 $x = ?$
A) 4 B) 5 C) 6 D) 7 E) 8



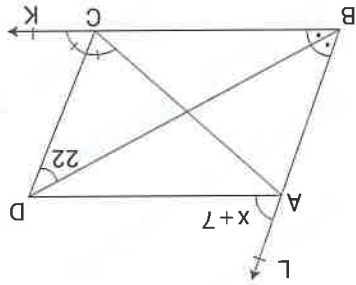
10. $m(\widehat{A}) > m(\widehat{C}) > m(\widehat{B})$
 $|BC| = a$
 $|AC| = b$
 $|AB| = c$
 $|a-b| + |b-d| + |a-d| = ?$
A) $a-b$
B) $2a-2c$
C) $2a-2b$
D) $2a-c$
E) $a-c$



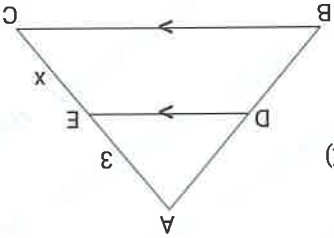
13. A,C,D doğrusal
A,C,D linear
 $|AB| = |AC| = |CD|$
 $|CE| = 7$
 $|BC| = ?$
A) 7 B) 8 C) 10 D) 12 E) 14



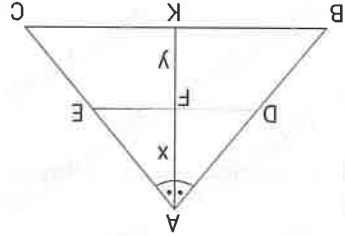
11. $m(\widehat{LBD}) = m(\widehat{DBK})$
 $m(\widehat{ACD}) = m(\widehat{DCK})$
 $m(\widehat{BDC}) = 22$
 $m(\widehat{LAD}) = x + 7$
 $x = ?$
A) 44 B) 50 C) 61 D) 64 E) 67



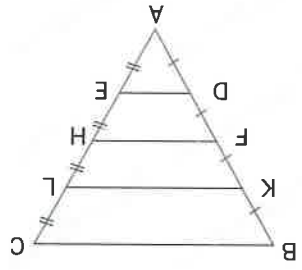
14. $[DE] \parallel [BC]$
 $9 A(BCED) = 7 A(ADE)$
 $|AE| = 3$
 $|EC| = x = ?$
A) 1 B) 2 C) 3 D) 4 E) 5



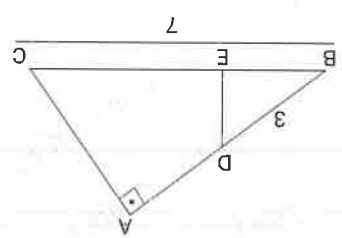
17. $\triangle ADE \sim \triangle ACB$
 $m(\widehat{BAK}) = m(\widehat{KAC})$
 $\frac{A(ADE)}{A(BDEC)} = \frac{21}{4}$
 $\frac{x}{y-x} = ?$
- A) $\frac{1}{2}$ B) $\frac{3}{1}$ C) $\frac{1}{4}$ D) $\frac{5}{1}$ E) 1



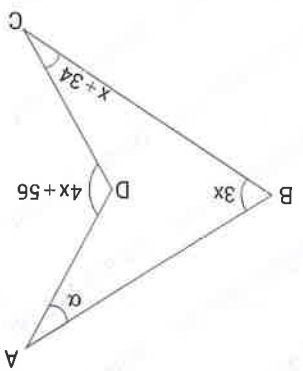
16. $|AD| = |DF| = |FK| = |KB|$
 $|AE| = |EH| = |HL| = |LC|$
 $A(FHCB) = 24$
 $A(FHED) = ?$
- A) 1 B) 2 C) 3 D) 4 E) 6



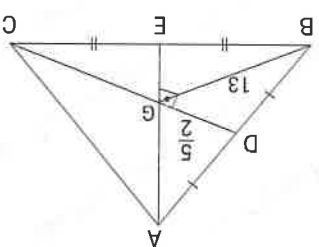
15. $[AB] \perp [AC]$
 $[DE] \perp [BC]$
 $|BD| = 3$
 $|BC| = 7$
 $\frac{A(BDE)}{A(ADCE)} = ?$
- A) $\frac{49}{9}$ B) $\frac{40}{9}$ C) $\frac{49}{3}$ D) $\frac{45}{7}$ E) $\frac{7}{3}$



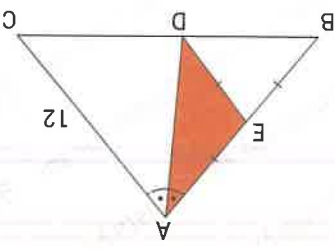
20. $m(\widehat{ABC}) = 3x$
 $m(\widehat{BCD}) = x + 34$
 $m(\widehat{ADC}) = 4x + 56$
 $m(\widehat{BAD}) = ?$
- A) 20 B) 22 C) 24 D) 26 E) 30



19. ABC bir üçgen
 G ağırlık merkezi
 $[AE] \perp [DC]$
 $[AG] \perp [DC]$
 $|AD| = |BD|$
 $|BE| = |EC|$
 $|DG| = \frac{2}{5}$
 $|BG| = 13$
 $|BC| = ?$
- A) 5 B) 10 C) 13 D) $\sqrt{61}$ E) $2\sqrt{61}$



18. $m(\widehat{BAD}) = m(\widehat{DAC})$
 $|AE| = |BE| = |ED|$
 $|BD| = 6$
 $|AC| = 12$
 $A(\widehat{ABC}) = ?$
- A) 18 B) 36 C) $9\sqrt{3}$ D) $18\sqrt{3}$ E) $20\sqrt{3}$



Başarıya Götüren



Mat	Problem / Problems
Geo	Circle / Daire
Mat	Circle Class A / Right Angle

Mat	Problem / Problems
Geo	Circle Class B / Right Angle
Mat	Circle Class C / Right Angle

Mat	Problem / Problems
Geo	Circle Class D / Right Angle
Mat	Circle Class E / Right Angle

Mat	Problem / Problems
Geo	Circle Class F / Right Angle
Mat	Circle Class G / Right Angle

Mat	Problem / Problems
Geo	Circle Class H / Right Angle
Mat	Circle Class I / Right Angle

Mat	Problem / Problems
Geo	Circle Class J / Right Angle
Mat	Circle Class K / Right Angle

Mat	Modüler Aritmetik
IQ	Küp Sayma Tamamlama
Geo	Köşgenler / Polygons
Mat	ve önceki konular / and previous topics

KTS-13

Mat	İşlem / Operation
IQ	Denklem Eşleştirme / Equation Matching
Geo	Üçgenin Açı Kenar Bağlantısı / Angle-Side Relation in Triangle

Mat	Doğal Sayılar / Natural numbers
IQ	Sayı Bağlantıları/Number Relations
Geo	Kenarortay / Medium

Mat	Basit Eşitsizlik ve Mutlak Değer
IQ	Sayı Bağlantıları / Number Relations
Geo	Ağıortay / Bisector

Mat	İşlem / Operation
IQ	Sayı Üçlüleri / Number Patterns
Geo	Üçgenin Açılar / Angles in Triangle

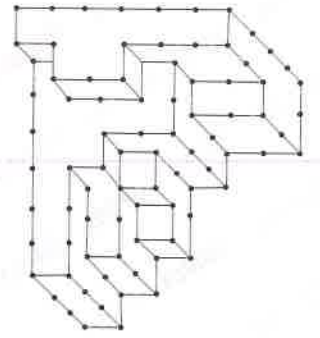
Mat	Oran Orantı / Ratio and Proportion
IQ	Tablolar / Tables
Geo	Üçgenin Benzerlik / Similarity in Triangles

Mat	Kökü Sayılar / Radical Expressions
IQ	İşlemler / Operations
Geo	Üçgenin Üçgen (Öklid) / Right triangle

Mat	Üçü Sayılar / Exponential Expressions
IQ	Sayı Üçlüleri / Number patterns
Geo	Üçgenin Üçgen / Right triangle

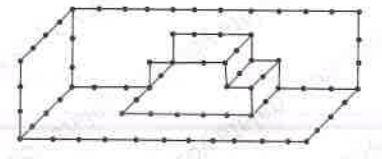
2.

- A) 75 B) 76 C) 77 D) 78 E) 79



=
x ?

- A) 114 B) 115 C) 116 D) 117 E) 118



=
x ?

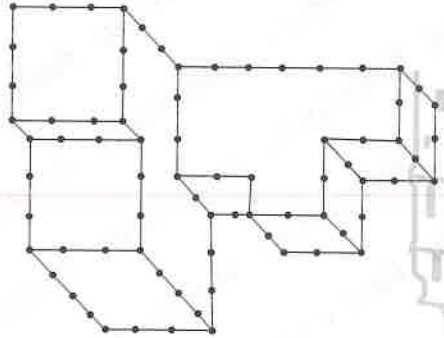
10

1.

3.

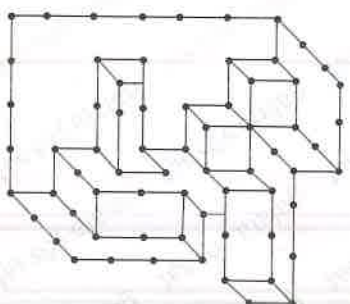
- A) 117 B) 118 C) 119 D) 120 E) 121

=
x ?

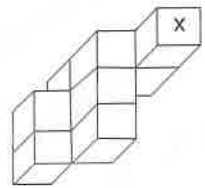


- A) 53 B) 54 C) 55 D) 56 E) 57

=
x ?

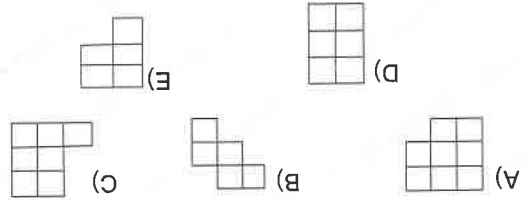


5.

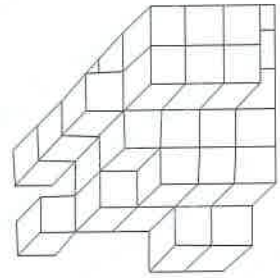


sağ

X parçası çıkarılırsa şeklin sağdan görünüşü nasıldır ?
If part x is removed, what is the view of the figure from
the right ?



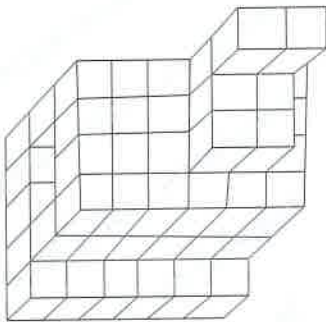
6.



Yukarıdaki şekilde kaç küp vardır ?
How many cubes are there in the figure above?

- A) 45 B) 44 C) 43 D) 42 E) 41

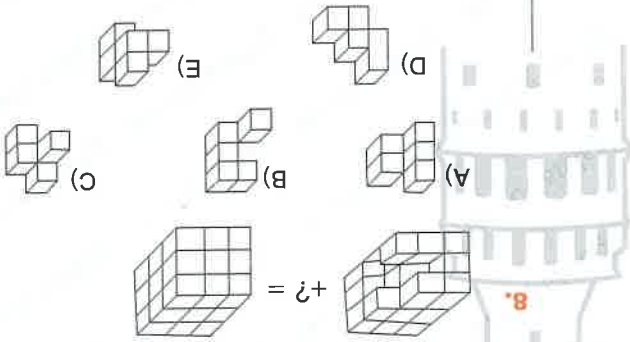
7.



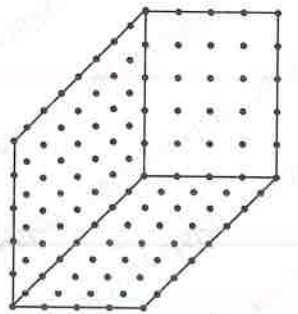
Yukarıdaki şekilde kaç küp vardır ?
How many cubes are there in the figure above?

- A) 86 B) 84 C) 74 D) 71 E) 70

8.

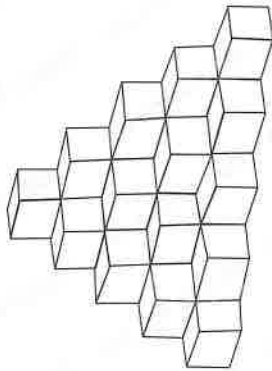


9.



- A) 140 B) 150 C) 160 D) 170 E) 180

12.

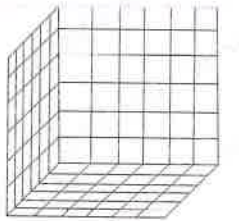


Şekildeki küplerin görünen yüzeyleri boyalıdır. Eğer boyalı olmayan yüzeyleri boyanmış ise kaç tane küp vardır? Eğer boyalı olmayan yüzeyleri boyanmış ise kaç tane küp vardır?

- A) 16 B) 18 C) 20 D) 22 E) 24

Asğıdaki 10. ve 11. sorular yukarıdaki şekle göre çözülecektir.

The 10th and 11th questions below will be solved according to the figure above.



10. Şekildeki küp birbiriyle eş 216 küptür. Oluşan büyük bütün yüzeyleri kırmızıya boyanmış. Hiç bir yüzeyi boyalı olmayan küp vardır ?
- A) 27 B) 45 C) 64 D) 81 E) 108

13. 35 ☆ 22 = 16
17 ☆ 33 = 24
15 ☆ 44 = 24
12 ☆ 25 = ?

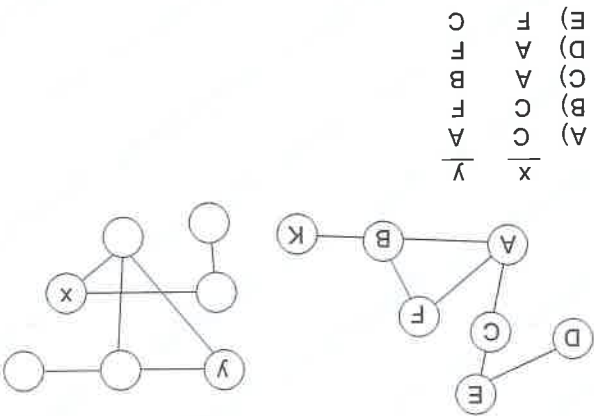
- A) 26 B) 22 C) 28 D) 12 E) 10

11. Üç yüzeyi boyalı olan küp vardır ? How many cubes are there on these surfaces painted
- A) 6 B) 8 C) 10 D) 12 E) 14

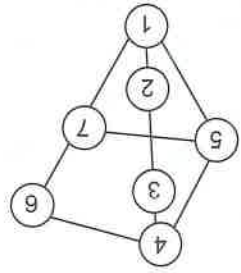
14. Hangisi bir özelliklikten dolayı farklıdır ?
Which of the following is different due to a feature?

- A) $\frac{21x-49y}{7}$
 B) $\frac{18x-36y}{6}$
 C) $\frac{25x-15y}{5}$
 D) $\frac{24x-64y}{8}$
 E) $\frac{33x-121y}{11}$

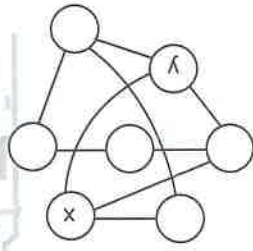
16.



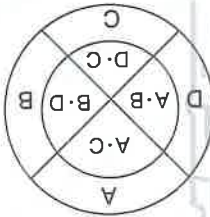
15.



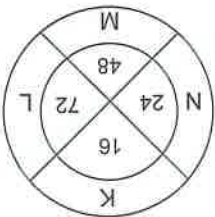
- A) $\frac{6}{7}$
 B) $\frac{4}{5}$
 C) $\frac{7}{5}$
 D) $\frac{3}{6}$
 E) $\frac{2}{7}$



17.



$(K+N) \cdot (M+L) = ?$



- A) 152
 B) 154
 C) 156
 D) 158
 E) 160

19.

73	41
----	----

25	56
----	----

15	x
----	---

x = ?

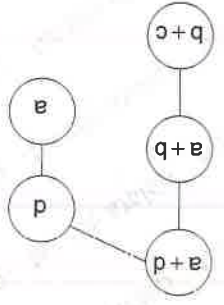
- A) 25 B) 50 C) 55 D) 60 E) 75



TAP = ?

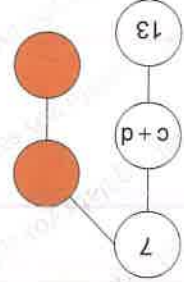
- A) 936 B) 938 C) 939 D) 937 E) 930

18.

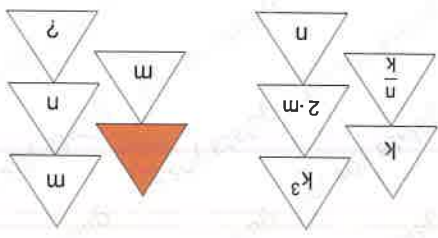


a+b = ?

- A) 5 B) 10 C) 15 D) 20 E) 25



20.



n = ?

- A) 2 B) 4 C) 8 D) 12 E) 16

a	$\frac{a+c}{2}$	b
a·b	$\frac{a+c}{b+d}$	c·d
c	$\frac{b+d}{2}$	d

Aşağıdaki (22 - 23) soruları bu tabloya göre cevaplayınız ?
Answer the following questions (22-23) according to this table.

$$a^3 - b^3 = ?$$

-	a	b
b	a	4
x	a	a
b	a	12

24.

- A) 125 B) 144 C) 176 D) 208 E) 216

a	8	b
56		90
c	9	d

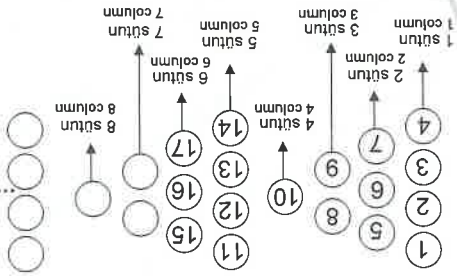
$$ad + cb = ?$$

22.

- A) 108 B) 136 C) 142 D) 156 E) 178

2019 sayısı kaçinci sütündür ?
In which column is 2019 number ?

- A) 201 B) 204 C) 804 D) 807 E) 811



25.

- A) 10 B) 8 C) 4 D) 2 E) 0

$$22 \curvearrowright 46 = ?$$

$$65 \curvearrowright 13 = 1$$

$$43 \curvearrowright 26 = 3$$

$$16 \curvearrowright 21 = 4$$

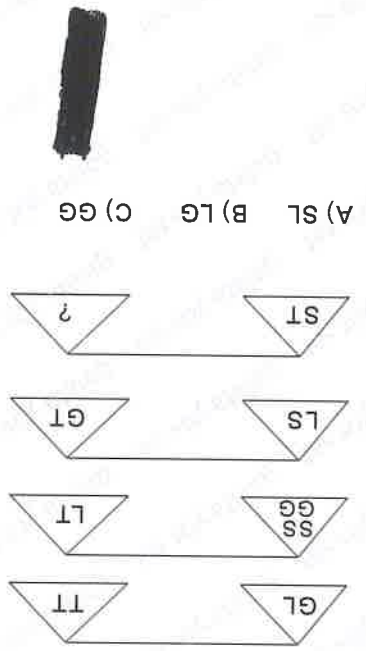
26.

a^3	$\frac{9}{5}$	$5 \cdot a$
$3a$		

$$a = ?$$

- A) 2 B) 3 C) 4 D) 5 E) 6

23.



- A) SL B) LG C) GG D) TT E) TG

29.

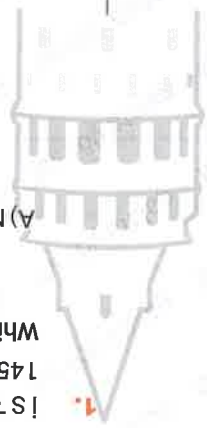
28. 31 34 46 70 ?

- A) 70 B) 82 C) 93 D) 104 E) 107

1.

İSTANBULİSTANBULİSTANBUL...
1453. harf asğıdakilerden hangisidir ?
Which of the following is the 1453 rd letter ?

- A) N B) L C) B D) A E) S



2.

$3^{24} = x \pmod{7}$
 $x = ?$

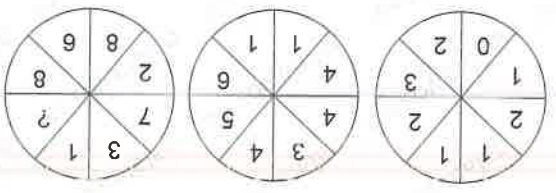
- A) 2 B) 3 C) 4 D) 1 E) 0

Matematik Maths

27. $x \triangle y = 3x \star y$
 $x \star y = \frac{x}{3} \blacksquare \frac{y}{3}$
 $x \blacksquare y = \frac{1}{x} + y$
 $(1 \triangle 3) \blacksquare (6 \star 9)$

- A) $\frac{3}{14}$ B) $\frac{3}{17}$ C) 6 D) $\frac{3}{7}$ E) $\frac{6}{17}$

30.



- A) 9 B) 8 C) 7 D) 5 E) 4

3. $\mathbb{Z}/7\mathbb{Z}$ $2x+5=1$
 $\Rightarrow x=?$

- A) 1 B) 2 C) 3 D) 4 E) 5

f: $\mathbb{R} \rightarrow \mathbb{R}$
 g: $\mathbb{R} \rightarrow \mathbb{R}$

$$f(x) = \begin{cases} 2x+1, & x \equiv 0 \pmod{2} \\ 3x, & x \equiv 1 \pmod{1} \end{cases}$$

$$g(x) = \begin{cases} x, & x \equiv 0 \pmod{3} \\ 3x+1, & x \equiv 1 \pmod{3} \\ x-1, & x \equiv 2 \pmod{3} \end{cases}$$

$\Rightarrow (g \circ f)(6) = ?$

- A) 44 B) 42 C) 41 D) 40 E) 14

4. $(1991)^{92} + (585)^{585} = x \pmod{5}$
 $\Rightarrow x = ?$

- A) 1 B) 2 C) 3 D) 4 E) 10

7. $m \in \mathbb{Z}, m > 1$
 $73 = 3 \pmod{m}$
 $107 = 2 \pmod{m}$
 $\Rightarrow \sum m = ?$

- A) 48 B) 47 C) 45 D) 40 E) 20

5. $\sqrt[9]{(1995)^k} = 9$
 $\Rightarrow k = ?$

- A) 8 B) 7 C) 0 D) 1 E) 2

8. $\frac{56}{1} + \frac{72}{1} + \frac{90}{1} = ?$

- A) $\frac{7}{3}$ B) $\frac{70}{3}$ C) $\frac{11}{4}$ D) $\frac{1001}{4}$ E) $\frac{7}{4}$

9. $\left(\frac{17}{3} - \frac{7}{2} + \frac{7}{5}\right) - \left(\frac{7}{5} - \frac{11}{6} - \frac{17}{14}\right) = ?$

- A) 1 B) 2 C) 3 D) -1 E) 0

12. $a + b - c = 3$
 $\frac{2^a \cdot 2^b}{2^c} = ?$

- A) 2^{-3} B) 3 C) 8 D) 16 E) 32

10. $\frac{a}{a-5} + 3a = \frac{a-5}{5} + 13$
 $\Rightarrow a = ?$

- A) 1 B) 2 C) 3 D) 4 E) 6

13. $x, y \in Z$
 $10x - 2 = 5y + 3$
 $\Rightarrow x \cdot y = ?$

- A) -6 B) -3 C) -2 D) 2 E) 6

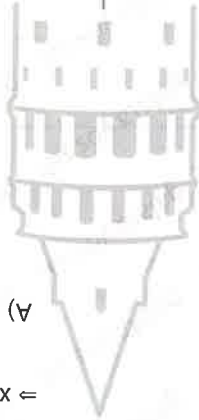
11. $5x + ay = 10$
 $10x - 6y = 20$
 $n(S) = \infty$
 $\Rightarrow a = ?$

- A) 5 B) 4 C) 3 D) -3 E) -2

14. $2^x = a$
 $3^x = b$

54^x in a ve b türünden degeri nedir ?
 What is the value of 54^x in term of a and b ?

- A) $a^3 \cdot b$ B) $a \cdot b^3$ C) $a^2 \cdot b^2$ D) $a^2 \cdot b^3$ E) $a^3 \cdot b^2$



15.
$$\begin{cases} m = 200 \\ n = 3150 \\ k = 5100 \end{cases} \Rightarrow ? < ? < ?$$

- A) $m < n < k$
- B) $k < n < m$
- C) $m < k < n$
- D) $k < m < n$
- E) $n < m < k$

18. $A = \sqrt{5-2\sqrt{6}}$
 $B = \sqrt{x-\sqrt{y}}$
 $A = B$
 $\Rightarrow x+y = ?$

- A) 1
- B) 5
- C) 4
- D) 6
- E) 10

16.
$$\sqrt{1-\frac{1}{2}} \cdot \sqrt{1-\frac{1}{3}} \cdot \sqrt{1-\frac{1}{4}} \dots \sqrt{1-\frac{1}{36}} = ?$$

- A) $\frac{36}{1}$
- B) $\frac{24}{1}$
- C) $\frac{12}{1}$
- D) $\frac{4}{1}$
- E) $\frac{6}{1}$

19.
$$\frac{\sqrt{42-\sqrt{42-\sqrt{42-\dots}}}}{\sqrt{6+\sqrt{6+\sqrt{6+\sqrt{6+\dots}}}}} = ?$$

- A) 2
- B) 3
- C) 4
- D) 6
- E) $\frac{3}{7}$

17. $x = x^{0,5} \Rightarrow \frac{[6]-[2]}{3} + \frac{[6]+[2]}{3} = ?$

- A) $3\sqrt{5}$
- B) $\sqrt{12}$
- C) $3\sqrt{6}$
- D) $3\sqrt{\frac{2}{6}}$
- E) $\frac{2}{\sqrt{6}}$

20.
$$\frac{(n-2)^i + ni}{(n+1)^i + (2-n)^i} = ?$$

- A) $\frac{5}{2}$
- B) $\frac{5}{1}$
- C) $\frac{3}{1}$
- D) $\frac{7}{3}$
- E) $\frac{7}{4}$



23. $x, y \in \mathbb{N}$
 $x^2 - y^2 = 23$
 $\Rightarrow x \cdot y = ?$

- A) 100 B) 121 C) 132 D) 134 E) 144

26. $a < b < 0 < c$
 $|a-b| + |c| - |-a| - |b-c| = ?$

- A) 2b B) 2c C) a D) b E) a-b+c

22. $x + \frac{1}{x} = 4$
 $\Rightarrow x^2 + \frac{1}{x^2} = ?$

- A) 2 B) 4 C) 6 D) 12 E) 14

25. $-4 < x < 2$
 $\Rightarrow ? < x^2 < ?$

- A) $4 < x^2 < 16$
 B) $0 < x^2 < 16$
 C) $0 < x^2 < 4$
 D) $0 \leq x^2 \leq 16$
 E) \emptyset

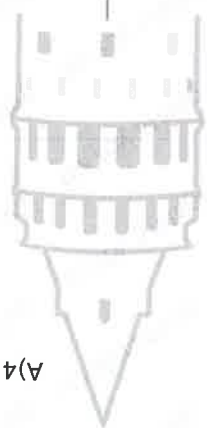
21. $9x^2 - 3x - 2 = ?$

- A) $\frac{x-1}{3x+1}$
 B) $\frac{3x-1}{x+1}$
 C) $\frac{3x+1}{x+1}$
 D) $\frac{3x+1}{x+1}$
 E) $\frac{3x-1}{x-1}$

$\max(3x-2y) = ?$
 $-4 \leq y < 3$
 $-2 \leq x \leq 2$

- A) 20 B) 18 C) 16 D) 15 E) 14

24. $x, y \in \mathbb{Z}$

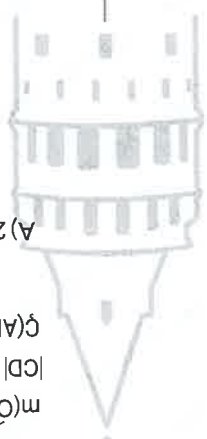


27. $\beta = \{x : |x-3| \leq 4, x \in \mathbb{Z}\}$
 $\Rightarrow n(\beta) = ?$
 A) 7 B) 8 C) 9 D) 10 E) 11

30. $a * b = (a+b)^i$
 $32 * 20 = \dots xyz \overbrace{0000 \dots 0}^{n \text{ tane } (n \text{ times})}$
 $\Rightarrow n = ?$
 A) 11 B) 12 C) 13 D) 14 E) 15

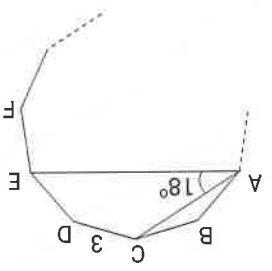
28. $f(x,y) = x^2 - 2xy + y^2$
 $\Rightarrow f(39, 29) = ?$
 A) 10 B) 100 C) 240 D) 390 E) 399

29. $f(x) = 3x^2 + 3x + 1$
 $f(2) + f(3) + f(4) + \dots + f(9) = ?$
 A) 9⁹ B) 9ⁱ C) 990 D) 992 E) 1002



1.

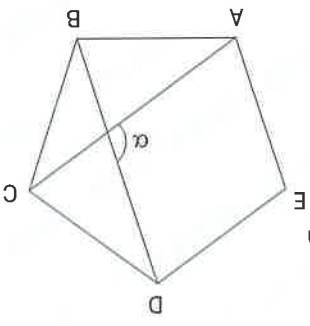
ABCD.....düzgün çokgen
 $m(\widehat{CAE}) = 18^\circ$
 $|CD| = 3 \text{ cm}$
 $\hat{C}(ABCD \dots) = ?$



A) 20 B) 30 C) 40 D) 50 E) 60

2.

ABCDE düzgün beşgen
 ABCDE regular pentagon
 $\alpha = ?$



A) 36 B) 72 C) 108 D) 120 E) 135

Geometri Geometry

3. ABCDEF düzğün altigen
 $|FH| = 3|HA| = 9$ cm
 $|GA| = x = ?$

A) 6 B) 7 C) 8 D) 9 E) 10

4. ABCDE düzğün besgen
 ABCDE regular pentagon
 F, besgenin merkezi
 $|FH| = 4$ cm
 $|AB| = 6$ cm
 $A(ABCDE) = ?$

A) 55 B) 60 C) 55 D) 70 E) 75

5. ABCDEF düzğün altigen
 $[KL] \parallel [AB]$
 $|KL| = 2|AK| = 2|BL|$
 $\hat{C}(ABLK) = 30$ cm
 $|CD| = 6$ cm
 $|KC| = ?$

A) $2\sqrt{11}$ B) 7 C) $3\sqrt{10}$ D) 13 E) $6\sqrt{7}$

6. ABCDEFKL düzğün sekizgen
 ABCDEFKL regular octagon
 $|FA| = 18 + 9\sqrt{2}$
 $A(\triangle FAB) = ?$

A) $36 + 36\sqrt{2}$ B) $36 + 18\sqrt{2}$ C) $18 + 18\sqrt{2}$ D) $81 + 81\sqrt{2}$ E) $54 + 81\sqrt{2}$

7. ABCDEF düzğün altigen
 ABCDEF regular hexagon
 $|BL| = 2$ cm
 $|CL| = 3$ cm
 $x = ?$

A) 2 B) $\frac{2}{5}$ C) 3 D) 5 E) 6

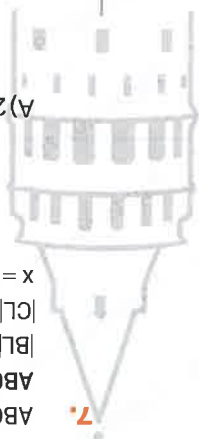
8. ABCDE düzğün besgen
 ABCDE regular pentagon
 $|AK| = |CK|$
 $m(\angle BLE) = \alpha = ?$

A) 36 B) 72 C) 90 D) 108 E) 120

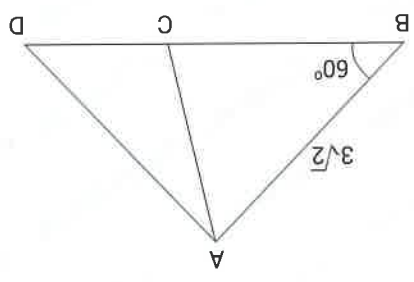
8.

7.

6.

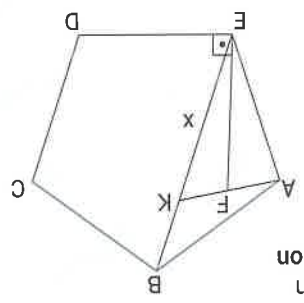


1. $m(\widehat{ABC}) = 60^\circ$
 $|BC| = 2|CD|$
 $|AB| = 3\sqrt{2}$
 $|BD| = 9\sqrt{2}$
 $A(\widehat{ACD}) = ?$



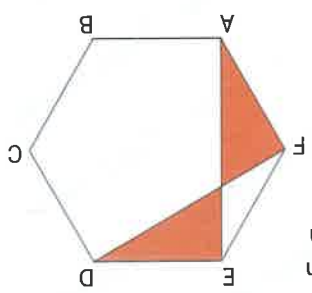
- A) $9\sqrt{2}$ B) $9\sqrt{3}$ C) $\frac{9\sqrt{3}}{2}$ D) $9\sqrt{6}$ E) $\frac{9\sqrt{6}}{2}$

10. ABCDE düzğün besgen
 $[FE] \perp [ED]$
 $6|AF| = 5|FK|$
 $|AE| = 10$ cm
 $|KE| = x = ?$



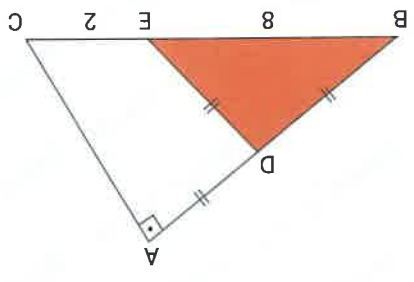
- A) 10 B) 12 C) 15 D) 16 E) 18

3. ABCDEF düzğün altigen
 $|BC| = 6\sqrt{3}$
 Taralı alan = ?
 Shaded area = ?



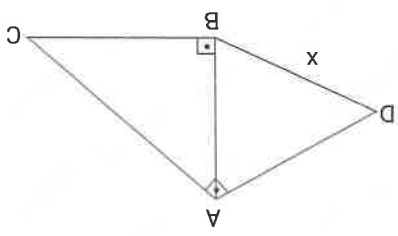
- A) 36 B) $36\sqrt{3}$ C) 18 D) $18\sqrt{3}$ E) $19\sqrt{3}$

14. ABC bir üçgen
 $[BA] \perp [AC]$
 $|AD| = |DB| = |DE|$
 $|BE| = 8$ cm
 $|EC| = 2$ cm
 $A(\widehat{BDE}) = ?$



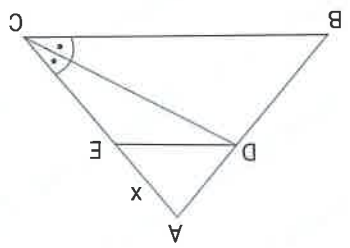
- A) 8 B) 10 C) 16 D) 20 E) 24

13. ABC dik üçgen
 $[AD] \perp [AC]$
 $|BC| = 20$ cm
 $|AC| = 25$ cm
 $|AD| = 14$ cm
 $|BD| = x = ?$



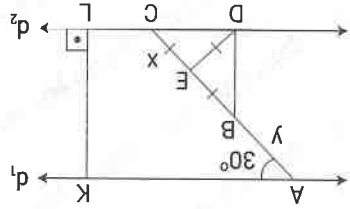
- A) $\sqrt{85}$ B) $\sqrt{89}$ C) 13 D) 15 E) 20

12. [CD] ağıortay
 $[DE] \parallel [BC]$
 $|AC| = 7$ cm
 $|BC| = 9$ cm
 $|AE| = x$ cm
 $\sqrt{x} = ?$



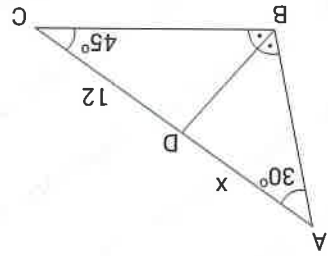
- A) $\frac{81}{49}$ B) $\frac{9}{7}$ C) $\frac{16}{49}$ D) $\frac{8}{9}$ E) $\frac{4}{7}$

17. $d_1 // d_2$
 $m(\widehat{CAK}) = 30^\circ$
 $|BE| = |EC| = |DE|$
 $|CD| = 6\sqrt{3}$
 $|KL| = 10$ cm
 $|AB| = y$ cm
 $|EC| = x$ cm
 $y - x = ?$



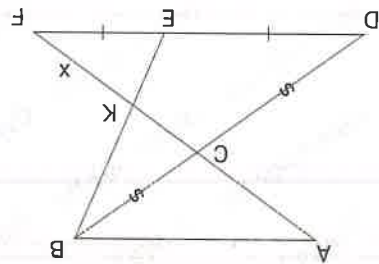
- A) 6 B) $6\sqrt{2}$ C) 12 D) $12\sqrt{2}$ E) $15\sqrt{2}$

16. ABC bir üçgen
 [BD] açıortay
 [BD] bisector
 $m(\widehat{BAC}) = 30^\circ$
 $m(\widehat{BCD}) = 45^\circ$
 $|CD| = 12$ cm
 $|AD| = x$ cm = ?



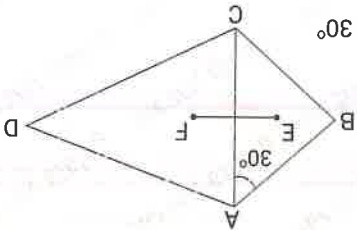
- A) 4 B) 6 C) 8 D) 10 E) 11

15. $|AB| // |DF|$
 $|BC| = |CD|$
 $|DE| = |EF|$
 $|AC| = 12$ cm
 $|KF| = x = ?$

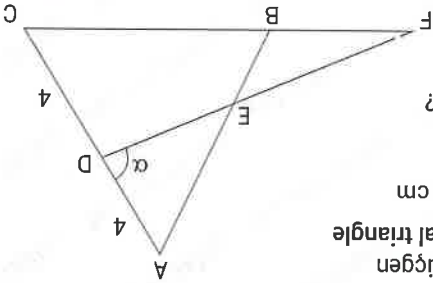


18.

- $m(\widehat{BAC}) = 30^\circ$
 $|AB| = |BC|$
 $|AD| = |AC| = |CD| = 6\sqrt{3}$ cm
 E, ABC üçgeninin ağırlık merkezi!
 E, the center of gravity for triangle ABC
 F, ACD üçgeninin ağırlık merkezi!
 F, the center of gravity for triangle ACD
 $|EF| = ?$

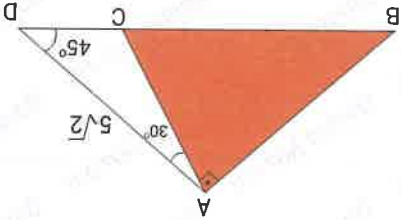


19. ABC eşkenar üçgen
 ABC equilateral triangle
 $|AD| = |DC| = 4$ cm
 $|FB| = 4\sqrt{3}$
 $m(\widehat{ADE}) = \alpha = ?$

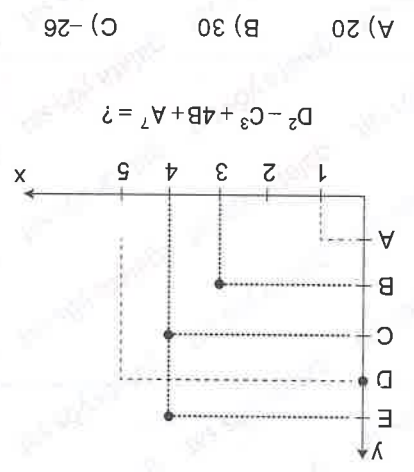


- A) 45 B) 55 C) 60 D) 75 E) 90

20. $[AB] \perp [AC]$
 $m(\widehat{CAD}) = 30^\circ$
 $m(\widehat{ADB}) = 45^\circ$
 $|AD| = 5\sqrt{2}$
 $A(\widehat{ABC}) = ?$



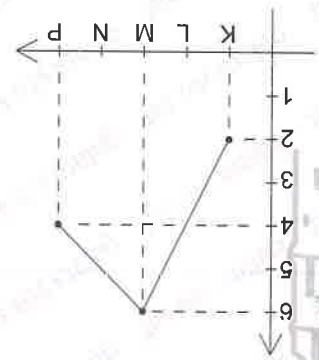
- A) 40 B) 50 C) 60 D) 70 E) 75



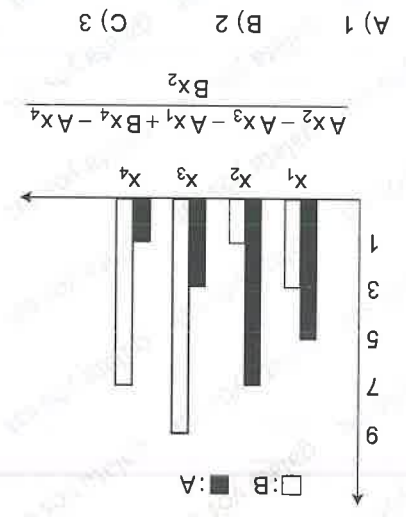
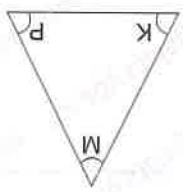
- A) 20 B) 30 C) -26 D) -20 E) 10

$D^2 - C^3 + 4B + A^2 = ?$

$P+K-M=?$



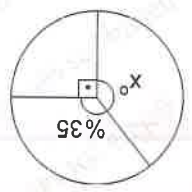
- A) 180 B) 150 C) 90 D) 30 E) 0



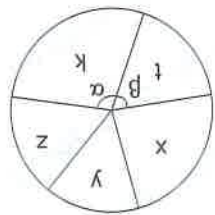
- A) 1 B) 2 C) 3 D) 4 E) 5

$\frac{Ax_2 - Ax_3 - Ax_1 + Bx_4 - Ax_4}{Bx_2}$

$x^0 = ?$



- A) 130 B) 134 C) 148 D) 144 E) 140



x	%20
y	%10
z	%7
t	%19
k	%44

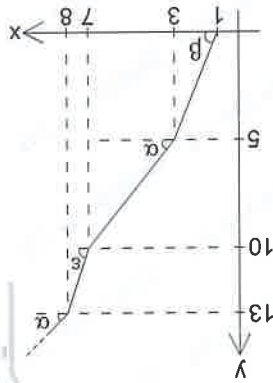
5. A) 93,4 B) 90 C) 81,6 D) 70 E) 66,8

$\alpha - \beta = ?$

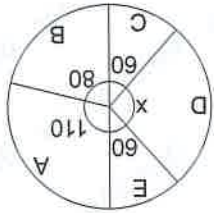
A:B=?

6. I. $x=28$ $y=A$
 II. $y=58$ $x=B$

- A) 45:34 B) 38:54 C) 54:38 D) 44:38 E) 38:44



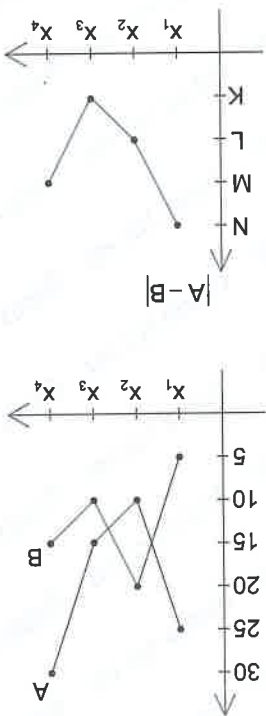
8.



$A+B+C+D+E=1080$
 $\Rightarrow D=?$

- A) 50 B) 150 C) 240 D) 300 E) 200

7.



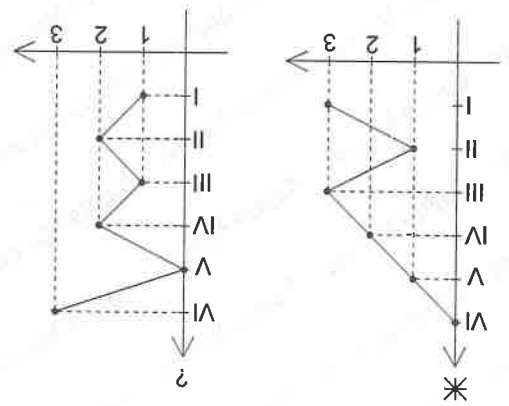
$K+L+N-M=?$

- A) 14 B) 15 C) 18 D) 20 E) 25

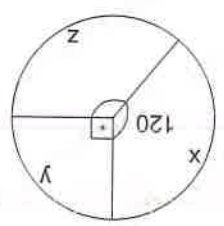
●	●	○	□	♠	*
□	♠	□	*	●	○
□	●	*	●	□	□
♠	*	□	*	*	*
□	●	○	*	□	●
○	♠	*	●	●	*
VI	V	IV	III	II	I

10.

- A) ● B) ○ C) □ D) ♠ E) *

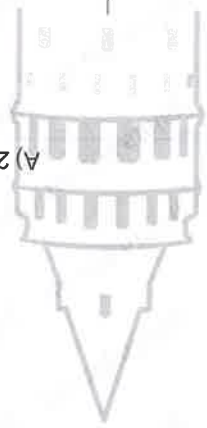


- A) 3, 4, 5 B) 4, 3, 5 C) 5, 2, 3 D) 4, 5, 3 E) 5, 3, 4



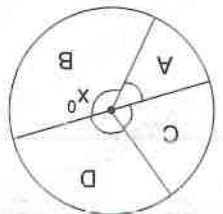
9.

x:y:z=?



12.

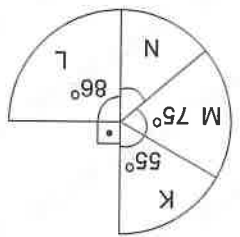
11.



A	B	12	48
C	D	18	42

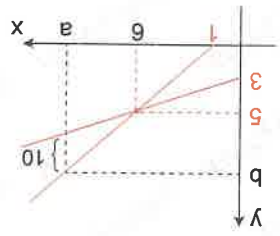
x=?

- A) 105 B) 126 C) 144 D) 162 E) 170



N = % ?

- A) 20 B) 30 C) 35 D) 40 E) 45

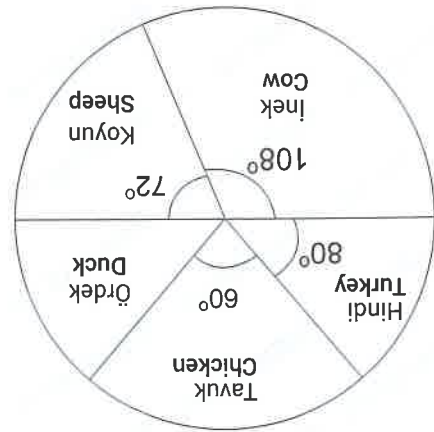


a+b=?

- A) 26 B) 41 C) 45 D) 52 E) 56

13.

14.

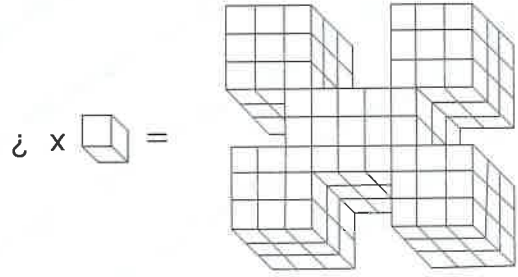


Yukarıdaki dairesel grafikte, Çiftlikteki 405 hayvanın ayak sayılarına göre dağılımı verilmiştir. Bu çiftlikteki ördek sayısı kaçtır ?

In a farm, there are 405 animals. The graph given above shows the number of legs of these animals. How many ducks are there in this farm ?

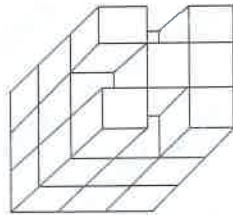
- A) 35 B) 40 C) 50 D) 60 E) 72

15.



- A) 114 B) 147 C) 150 D) 153 E) 156

16.



Yukarıda eş küplerden oluşan şekle göre görünme-yen yüzey sayısı kaçtır ?

According shaped shape above consisting of equally shaped cubes, how many surfaces are not visible ?

- A) 109 B) 110 C) 114 D) 125 E) 138

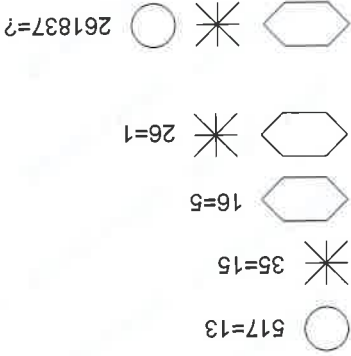
17.

+	a	b	c
	a	b	
	b	c	
c			64

$a+b=?$

- A) 18 B) 20 C) 24 D) 26 E) 28

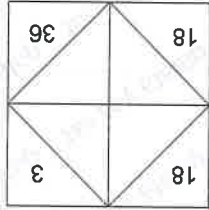
18.



- A) 3 B) 5 C) 6 D) 8 E) 9

21. 5 * 2=17
9 * 4=17
12 * 5=19
15 * 6=?
A) 8
B) 9
C) 14
D) 18
E) 19

23.



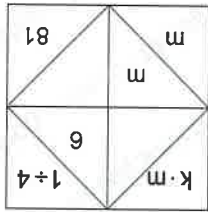
$$k \cdot n = ?$$

- A) 16
B) 15
C) 14
D) 12
E) 9

20. 73, 69, 64, 62, 58, ?

- A) 57
B) 56
C) 55
D) 54
E) 53

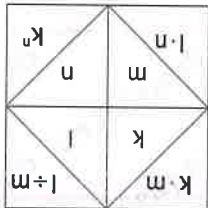
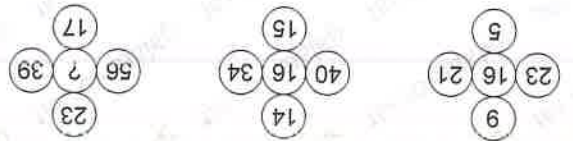
22.



$$k \cdot m = ?$$

- A) 68
B) 72
C) 108
D) 116
E) 144

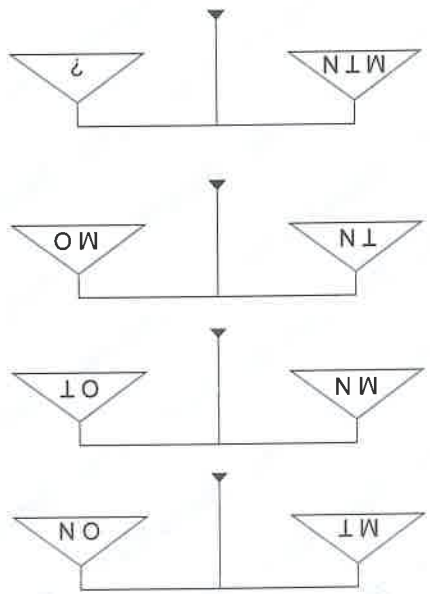
19. A) 15
B) 23
C) 27
D) 32
E) 35



Aşağıdaki 22. ve 23. sorular
yandaki şekle göre yapılacaktır.
The 22nd and 23rd questions
below will be made according
to the figure below.

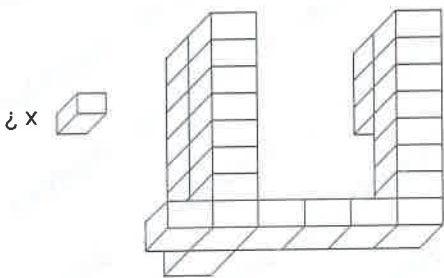
Özellik Feature

24.



- A) MM
- B) NN
- C) TO
- D) MOOE
- E) NN

26.

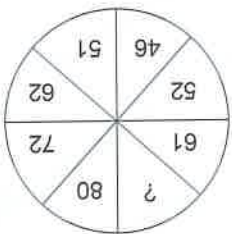


- A) 27
- B) 28
- C) 29
- D) 30
- E) 31

27.



- A) 32
- B) 36
- C) 94
- D) 46
- E) 61



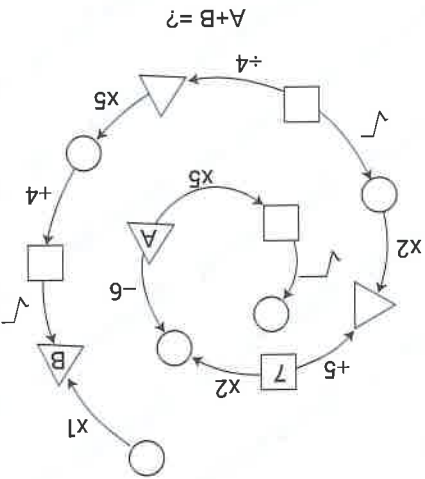
25.

+	a	b	c
a	3c		
b		12	
c	13		

a = ?

- A) 5
- B) 6
- C) 7
- D) 8
- E) 9

28.



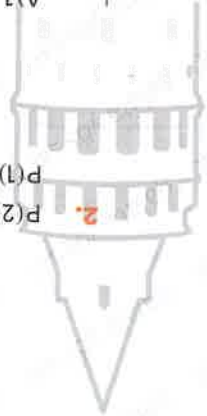
- A) 21
- B) 23
- C) 25
- D) 27
- E) 29

LİFAĞ	02535
KİLEF	42017
LİLAT	53026
MİLEÇ	02738
TALİM	62019

29. ve 30. soru yukarıdaki verilere göre cevaplanacaktır.
29th and 30th questions will be answered according to the above data.

29. $\sqrt{\sqrt{11}i} + \sqrt{TK} = ?$

- A) 2 B) 3 C) 4 D) 5 E) 6



2. $P(2) = P(-1) = P(3) = 0$
 $P(1) = 8$

$\Rightarrow K = ?$

$$\frac{K}{P(x-2) \cdot (x+1)}$$

- A) 180 B) -120 C) 100 D) -100 E) 0

30. $\frac{F}{Q^2 - T^2} = ?$

- A) M B) A C) E D) G E) K

1. $\max \text{der}[P(x)] = ?$

$P(x) = 2x^{\frac{n}{2n-18}} + 4x^{n-3} + 10$ polinom / polynomial

- A) 3 B) 4 C) 5 D) 6 E) 15

3.
$$\frac{P(x)}{x+1} = \frac{0}{x+1}$$

$$\frac{P(x)}{x-4} = \frac{10}{x-4}$$

$$\frac{P(x)}{x^2-3x-4} = \frac{K(x)}{x^2-3x-4}$$

 A) $2x-2$ B) $2x-3$ C) $2x+2$
 D) $2x+3$ E) $2x$

6. P(x) polinom / polynomial

$$P(x) = x^4 - x^{\frac{m-1}{15}} - 2x^{m-6} - x$$

$$\sum m = ?$$

 A) 24 B) 22 C) 18 D) 16 E) 12

4.
$$P(x-2) = x^2 + 2ax + 7 - a$$

$$\frac{0}{x+3} = \frac{P(x+1)}{x+3}$$

$$\Rightarrow a = ?$$

- A) 3 B) 4 C) 5 D) 6 E) 7

5.
$$P(x) = 4x^3 - 3x^2 + 7$$

$$P(x+2)$$
 polinomunun katsayıları toplamı kaçtır?
 what is the sum of the coefficients of the polynomial $P(x+2)$?
 A) 88 B) 89 C) 90 D) 91 E) 92

8.
$$\frac{x^{10} - 2x + 1}{x-1} = \frac{Q(x)}{x-1}$$

- Q(x) polinomunun katsayıları toplamı kaçtır?
 what is the sum of the coefficients of the polynomial Q(x)?
 A) 2 B) 4 C) 6 D) 8 E) 10

7.
$$P(\sqrt{x^4}) = x^{16} + 2x^4 + 1$$

$$\frac{K}{x+1} = \frac{P(x)}{x+1}$$

$$\Rightarrow K = ?$$

 A) 1 B) 2 C) 3 D) 4 E) 5

9. $(x+2)P(x) = x^2 - ax - 8$

$$\frac{P(x+3)}{x-4} = \frac{K}{x-4}$$

$\Rightarrow K = ?$

- A) 0 B) 1 C) 2 D) 3 E) 5

12. $x \in \mathbb{Z}$

$\overbrace{99 \dots 9}^{19 \text{ lene (yap)}} \equiv x \pmod{10}$

$\Rightarrow x = ?$

- A) -3 B) -5 C) 1 D) -1 E) -2

- A) -36 B) -38 C) -45 D) -47 E) -52

$P(x-4)$ ün sabit terimi kaçtır ?
What is the constant term of $P(x-4)$?

A) [0, 2]

B) (2, 6]

E) [2, 6)

C) (4, 6]

D) [2, 4]

11. $n = 123456789$

$n \cdot 10^a \equiv x \pmod{5}$

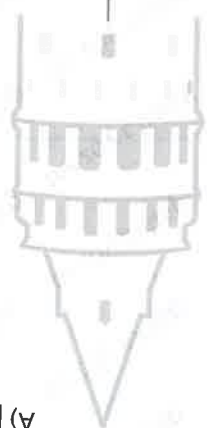
$\Rightarrow x = ?$

- A) 1 B) 0 C) 2 D) 4 E) -3

14. $x^y + k^m = 5, x^y \cdot k^m = 2$

$\Rightarrow x^{3y} + k^{3m} = ?$

- A) 125 B) 115 C) 95 D) 45 E) 15



15. $12^{m-1} = 3^{m+1} \Rightarrow 6^{\frac{1}{2}m} + 2^{-m+1} = ?$

- A) $\frac{3}{5}$ B) 2 C) $\frac{3}{7}$ D) $\frac{3}{8}$ E) $\frac{3}{10}$

18. $a^4 + 4a^3 + 6a^2 + 4a - 15$ ifadesinin çarpanlarından biri hangisidir ?

Which is one of the factors of expression?

- A) $a^2 - a + 3$ B) $a^2 - a + 1$ C) $a^2 + a - 1$
 D) $a^2 + 2a - 3$ E) $a^2 + 2a + 1$

16. $\sqrt{a-2} = \frac{\sqrt{7+1}}{\sqrt{7-1}} = \frac{\sqrt{a+2}}{\sqrt{7-1}} \Rightarrow a = ?$

- A) 10 B) 11 C) 12 D) 13 E) 14

19. $x < 4$ için $\sqrt{x^2 - 7x + 12} + \sqrt{x^2 - 8x + 16} = ?$

- A) $x - 4$ B) $4 - x$ C) $3 - x$
 D) $3 + x$ E) 0

17. $\sqrt{3-y} = -x^2 + 8x - 16 \Rightarrow x + y = ?$

- A) 7 B) 8 C) 9 D) 10 E) 11

20. $m = 0,3 + 0,09 + 0,009 + 0,0009 + \dots$
 $n = 0,2 + 0,03 + 0,003 + 0,0003 + \dots$
 $k = 4 - 0,6 - 0,06 - 0,006 - \dots$
 $\Rightarrow m + n + k = ?$

- A) $\frac{30}{1}$ B) $\frac{119}{30}$ C) $\frac{30}{29}$ D) $\frac{45}{13}$ E) $\frac{45}{17}$

21. Aşağıdakilerden hangi tek sayıdır ?
Which of the following is an odd number?

- A) $4^{10} + 7i$ B) $65i - 5^0$ C) $0i + 7^{25}$
D) $6^7 \cdot 5^8 - 10^4$ E) $13i - 8i$

22. $1 + \frac{1}{1 + \frac{1}{x}} = ?$

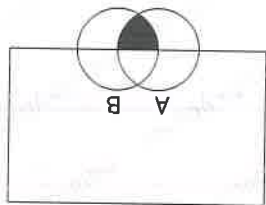
- A) $\frac{x}{3x}$ B) $\frac{4x+1}{2x+3}$ C) $\frac{3x+2}{2x+1}$
D) $\frac{2x+1}{2x+3}$ E) $\frac{5x+1}{x+3}$

23. $f: \mathbb{R} \rightarrow \left(-\infty, -\frac{1}{2}\right)$
 $f(x) = 4x^2 - 4x - 4$
 $\Rightarrow f(x)^{-1} = ?$

- A) $1 + \sqrt{x+5}$ B) $\frac{2}{1 - \sqrt{x+5}}$ C) $\frac{\sqrt{x+5} + 1}{2}$
D) $1 - \sqrt{x+5}$ E) $\frac{\sqrt{x+5} - 1}{2}$

24. $x > y < 0 < z$
 $\sqrt{(x-y)^2} + \sqrt[4]{(y-z)^4} + \sqrt[8]{(z-y)^8} = ?$
A) $2z - x - y$ B) 0 C) $2z + x$
D) $x - y$ E) $2z - x + y$

25.



Taralı Alan = ?
Shaded area = ?

- A) $(A \cap B) \cup C$ B) $A \cap (B \cap C)$ C) $(A - B) \cap C$
D) $(A \cup B) \cap C$ E) $(A \cap B) / C$

○	a	b	c	d	e	f
○	a	b	c	a	f	e
○	a	b	c	a	f	d
○	a	b	c	d	b	e
○	a	b	c	d	e	f
○	a	b	c	d	e	f
○	a	b	c	d	e	f
○	a	b	c	d	e	f

$a \circ a^{-1} = e$ $a \circ y = y$ $a \circ e = a$

$k * m = (k \circ m) \circ k$

$k \Delta m = (k * m) \circ (m * k)$

$f(x, y) = (x \Delta y) * y$

Yükarıda tanımlanmış işlemlere göre 26, 27, 28, 29, 30 soruları cevaplayınız.
Answer questions 26, 27, 28, 29, 30 according to the procedures described above.

26. $(e \circ f)^{-1} = (a * b) * y$

$\Rightarrow y = ?$

- A) a B) b C) c D) f E) e

27. $(a \circ b)^{-1} \circ c = ?$

- A) e
- B) a
- C) b
- D) c
- E) d

30. $(c * d) \circ x = d$

$\Rightarrow x = ?$

- A) e
- B) d
- C) c
- D) b
- E) a

28. $(b * c) \circ e = ?$

- A) f
- B) e
- C) a
- D) d
- E) c

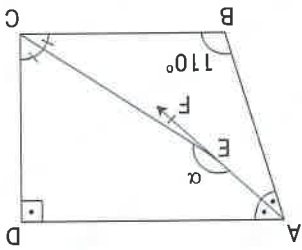
1.

[AD] \perp [DC]

[AF], [CE] açıortay

[AF], [CE] bisector

$m(\widehat{ABC}) = 110^\circ$



- A) 130
- B) 140
- C) 150
- D) 160
- E) 170

29. $f(a,b) = ?$

- A) b
- B) c
- C) d
- D) e
- E) f

2.

[ED] \perp [AE]

[BD] \perp [AC]

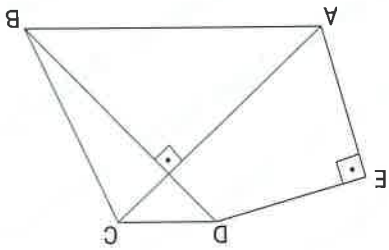
[AE] = a = [CD]

[ED] = b = [BC]

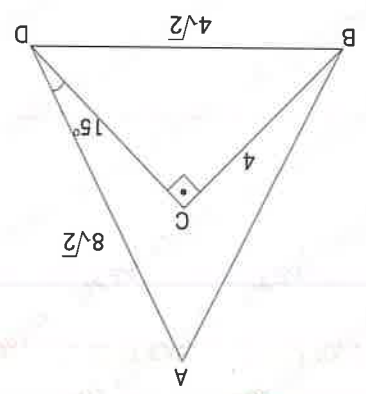
$|AB| = 5\sqrt{2}$ cm

$|BC| = b = ?$

- A) 1
- B) 2
- C) 3
- D) 4
- E) 5

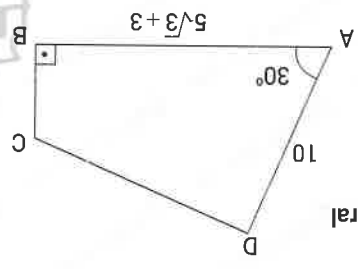


3. [BC] ⊥ [CD]
|BC| = 4 cm
|BD| = 4√2 cm
|AD| = 8√2 cm
m(∠ADC) = 15°
A(ABCD) = ?



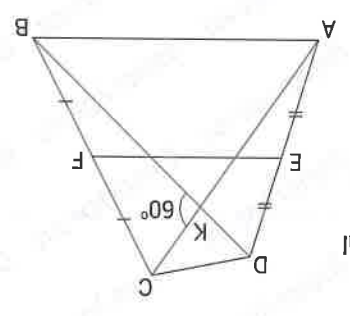
- A) 16√3 + 8
B) 16√3 - 8
C) 8√3 + 16
D) 8√3 - 8
E) 16√3 + 16

4. ABCD bir dörtgen
ABCD is a quadrilateral
[BC] = 1 cm
[AD] = 10 cm
[AB] = 5√3 + 3m
m(∠DAB) = 30°
A(ABCD) = ?



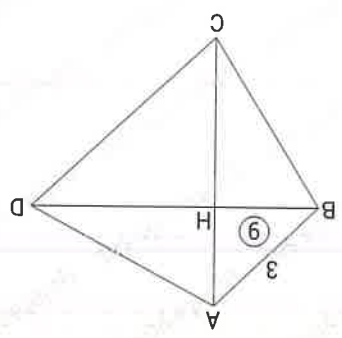
- A) 25√3 + 9
B) 25√3 - 9
C) 25√3 + 18
D) 25√3 + 9
E) 25√3 - 9

5. ABCD dörtgen
ABCD is a quadrilateral
[BD] ve [AC] köşegen
[BD] and [AC] diagonal
m(∠BKC) = 60°
|BK| = 12 cm
|AC| = 8 cm
|EF| = ?



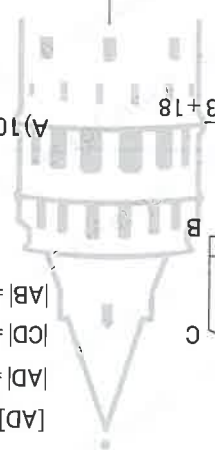
- A) 2√7
B) 8
C) √76
D) 10
E) 11

6. ABCD bir dörtgen
ABCD is a quadrilateral
[AB] // [CD]
|AB| = 3 cm
|CD| = 5 cm
A(ABH) = 9 cm²
A(ABCD) = ?

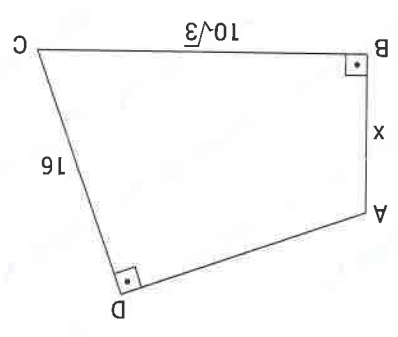


- A) 45
B) 50
C) 60
D) 64
E) 70

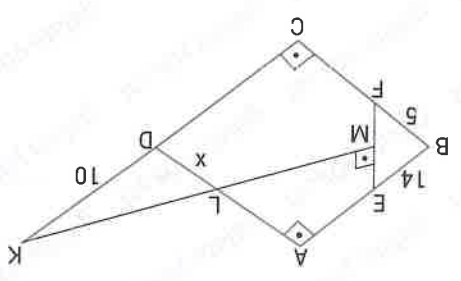
7. [AB] ⊥ [BC]
[AD] ⊥ [CD]
|AD| = 12 cm
|CD| = 10√3 cm
|AB| = x = ?



- A) 10
B) 15
C) 10√2
D) 20
E) 24



8. [EF] ⊥ [MK]
[BC] ⊥ [CK]
[AB] ⊥ [AD]
[BF] = 5 cm
[BE] = 14 cm
[DK] = 10 cm
[DL] = x = ?



- A) 12
B) 14
C) 16
D) 24
E) 28

11. ABCDE düzğün beşgen
 ABCDE regular pentagon
 $|AB| = |FD|$
 $m(\widehat{FDE}) = 40^\circ$
 $\alpha = ?$

A) 30° B) 31° C) 32° D) 33° E) 34°

10. $m(\widehat{A}) = m(\widehat{B}) = 60^\circ$
 $m(\widehat{C}) = 90^\circ$
 $|BC| = 14$ cm
 $|AB| = 20$ cm
 $\widehat{C}(ABCD) = ?$

A) 40 B) 54 C) 60 D) $40 + 60\sqrt{3}$ E) $42 + 6\sqrt{3}$

9. $[AH] \perp [BC]$
 $[DC] \perp [BC]$
 $[DE] \perp [AB]$
 $m(\widehat{EDC}) = 110^\circ$
 $m(\widehat{BAD}) = 55^\circ$
 $|DE| = 3$ cm
 $|DC| = 7$ cm
 $|AH| = h = ?$

A) 4 B) 5 C) 6 D) 7 E) 10

12. ABCDE düzğün beşgen
 ABCDE regular pentagon
 $|EF| = 7$ cm
 $|AC| = 25$ cm
 $|BF| = ?$

A) 14 B) 20 C) 24 D) 25 E) 30

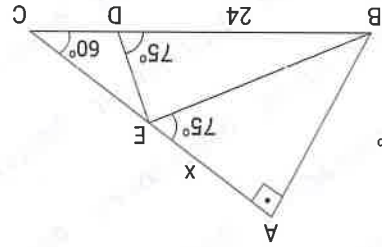
13. ABCDFEGH düzğün sekizgen
 ABCDFEGH regular hexagon
 $|HK| = 5$
 $|DK| = 15$
 $|BK| = ?$

A) 5 B) $5\sqrt{5}$ C) 15 D) 10 E) $10\sqrt{5}$

14. ABC bir üçgen
 ABC triangle
 $|DB| = |DC|$
 $|BF| = |AC|$
 $|CE|, |BF|$ kenarortay
 $m(\widehat{ABC}) = 40^\circ$
 $m(\widehat{BAC}) = 64^\circ$
 $\Rightarrow x = ?$

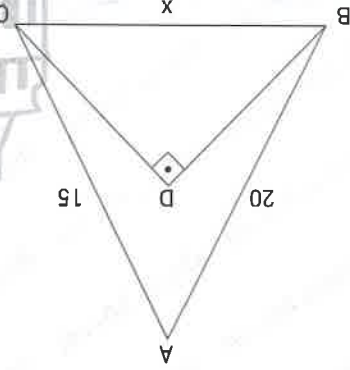
A) 20 B) 24 C) 16 D) 36 E) 40

17. [BA] ⊥ [AC]
 $m(\widehat{ACB}) = 60^\circ$
 $m(\widehat{AEB}) = m(\widehat{EDB}) = 75^\circ$
 $|BD| = 24$
 $|AE| = x = ?$



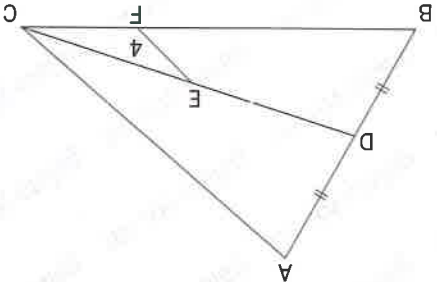
- A) 6 B) 9 C) 12 D) 16 E) 24

16. [BD] ⊥ [CD]
 $|AB| = 20$ cm
 $|AC| = 15$ cm
 $|BC| = x$
 $x \in Z \max(x) = ?$



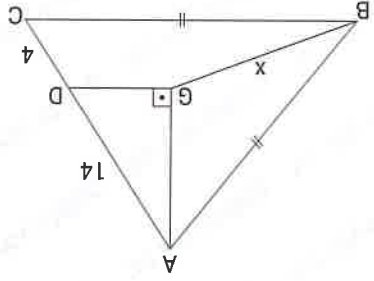
- A) 18 B) 20 C) 21 D) 22 E) 24

20. ABC bir üçgen
 $[AC] \parallel [EF]$
 $2|DE| = 3|EC|$
 $|AD| = |DB|$
 $|EF| = 4$
 $|AC| = ?$



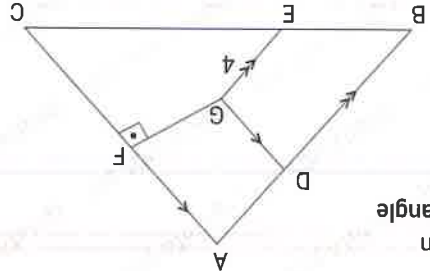
- A) 10 B) 20 C) 25 D) 30 E) 35

19. ABC bir üçgen
 G: ağırlık merkezi
 $[AG] \perp [GD]$
 $|AB| = |AC|$
 $|DC| = 4$
 $|AD| = 14$
 $|BG| = x$



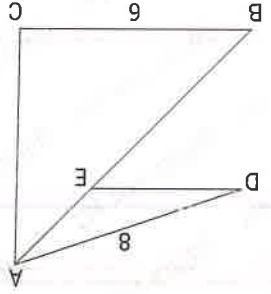
- A) $6\sqrt{5}$ B) $3\sqrt{5}$ C) $2\sqrt{5}$ D) $\sqrt{5}$ E) 5

15. ABC eşkenar üçgen
 $[DG] \parallel [AC]$
 $[GE] \parallel [AB]$
 $[GF] \perp [AC]$
 $[DG] = 2$ cm
 $[GE] = 4$ cm
 $[GF] = 5\sqrt{3}$ cm
 $\widehat{C(ABC)} = ?$



- A) 40 B) 42 C) 48 D) 50 E) 60

18. $m(\widehat{ABC}) + m(\widehat{BAC}) = 90^\circ$
 $m(\widehat{BAC}) = m(\widehat{DAE})$
 $3|BE| = 5|AE|$
 $|BC| = 6$ cm
 $|AD| = 8$ cm
 $A(\widehat{ADE}) = ?$



- A) 6 B) 7 C) 8 D) 9 E) 10

Başarıya Götüren



Mat	Modüler Aritmetik	Modüler Aritmetik
Mat	Küp Sayma Taramaları	Küp Sayma Taramaları
Geo	Kökenler / Polygons	Kökenler / Polygons

Mat	İl-Devreden Denklemler	Parabol Eşitlikler
Geo	Paralelkenarlar / Parallelogramlar	Paralelkenarlar / Parallelogramlar
Geo	Uçgenin Alanı / Area of Triangles	Uçgenin Alanı / Area of Triangles

Mat	Doğal Sayılar / Natural numbers	Sayı Bağlantıları / Number Relations
Geo	Kenarortay / Medium	Kenarortay / Medium
Geo	Uçgenin Benzerlik	Uçgenin Benzerlik

Mat	Basit Eşitsizlik ve Mutlak Değer	Basit Eşitsizlik ve Mutlak Değer
Mat	Çarpım Ayrımı / Factorization	Çarpım Ayrımı / Factorization
Geo	İkizkenar ve Eşkenar Uçgen	İkizkenar ve Eşkenar Uçgen

Mat	İl-Devreden Denklemler	Parabol Eşitlikler
Geo	Paralelkenarlar / Parallelogramlar	Paralelkenarlar / Parallelogramlar
Geo	Uçgenin Alanı / Area of Triangles	Uçgenin Alanı / Area of Triangles

Mat	Doğal Sayılar / Natural numbers	Sayı Bağlantıları / Number Relations
Geo	Kenarortay / Medium	Kenarortay / Medium
Geo	Uçgenin Benzerlik	Uçgenin Benzerlik

Mat	İl-Devreden Denklemler	Parabol Eşitlikler
Geo	Paralelkenarlar / Parallelogramlar	Paralelkenarlar / Parallelogramlar
Geo	Uçgenin Alanı / Area of Triangles	Uçgenin Alanı / Area of Triangles

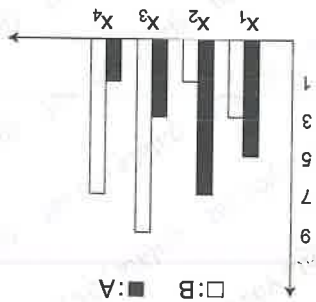
Mat	Basit Eşitsizlik ve Mutlak Değer	Basit Eşitsizlik ve Mutlak Değer
Mat	Çarpım Ayrımı / Factorization	Çarpım Ayrımı / Factorization
Geo	İkizkenar ve Eşkenar Uçgen	İkizkenar ve Eşkenar Uçgen

Mat	İl-Devreden Denklemler	Parabol Eşitlikler
Geo	Paralelkenarlar / Parallelogramlar	Paralelkenarlar / Parallelogramlar
Geo	Uçgenin Alanı / Area of Triangles	Uçgenin Alanı / Area of Triangles

Mat	İl-Devreden Denklemler	Parabol Eşitlikler
Geo	Paralelkenarlar / Parallelogramlar	Paralelkenarlar / Parallelogramlar
Geo	Uçgenin Alanı / Area of Triangles	Uçgenin Alanı / Area of Triangles

Mat	İl-Devreden Denklemler	Parabol Eşitlikler
Geo	Paralelkenarlar / Parallelogramlar	Paralelkenarlar / Parallelogramlar
Geo	Uçgenin Alanı / Area of Triangles	Uçgenin Alanı / Area of Triangles

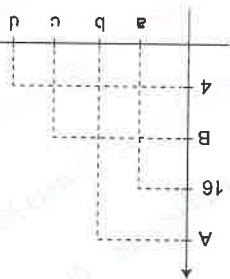
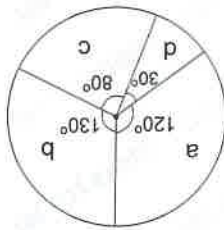
1.



$$\Rightarrow \frac{Ax_1 + Bx_2 - Ax_3 + Bx_4 - Ax_4}{Bx_1} = ?$$

- A) 1 B) 2 C) 3 D) 4 E) 5

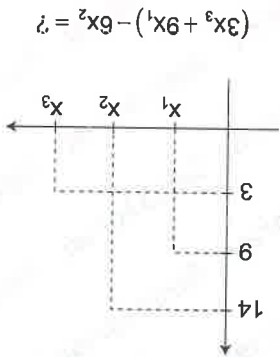
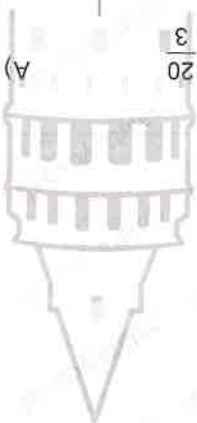
2.



A - B = ?

- A) $\frac{3}{14}$ B) $\frac{3}{16}$ C) $\frac{3}{17}$ D) $\frac{3}{19}$ E) $\frac{3}{20}$

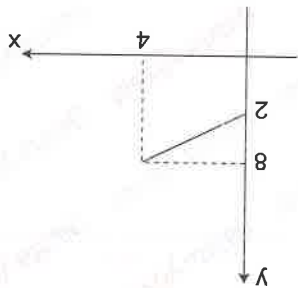
5.



$(3x_3 + 9x_1) - 6x_2 = ?$

- A) 6 B) -6 C) 21 D) 30 E) -30

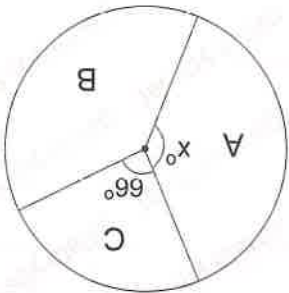
3.



$y = 44$
 $x = ?$

- A) 28 B) 31 C) 35 D) 34 E) 35

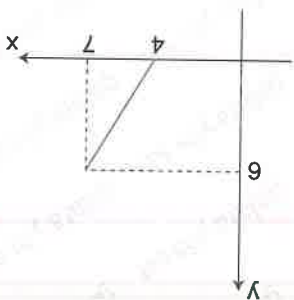
6.



$4A = 3B$
 $x = ?$

- A) 168 B) 154 C) 126 D) 117 E) 97

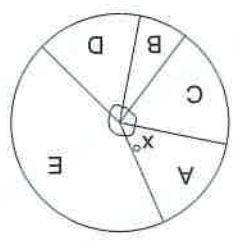
4.



$x = 2$
 $y = ?$

- A) 2 B) -1 C) 4 D) -4 E) 5

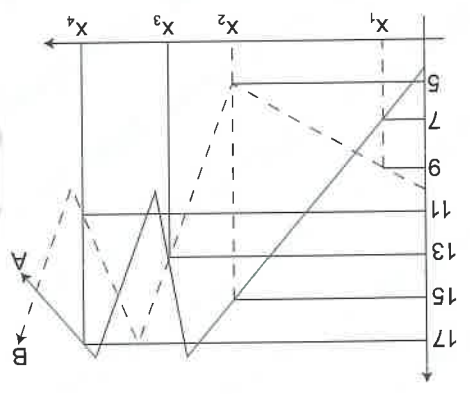
- A) 30 B) 60 C) 90 D) 120 E) 150



A	B	C	D	E
6	3	9	6	12

$x = ?$

10.



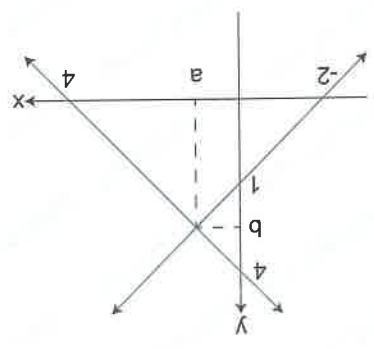
- A) 2 B) 4 C) 8 D) 11 E) 13

$a = A_{x_1} - B_{x_1}$
 $b = A_{x_2} - B_{x_2}$
 $a + b = ?$

8.

- A) 3 B) 4 C) 5 D) 6 E) 7

$a + b = ?$



7.

9.

K-L = ?

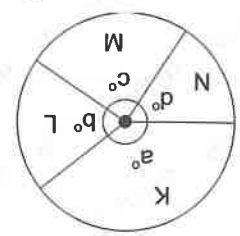
A)

B)

C)

D)

E)

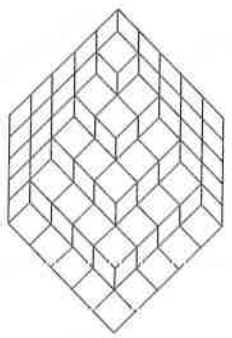


%40	%15	%20	%25
K	L	M	N

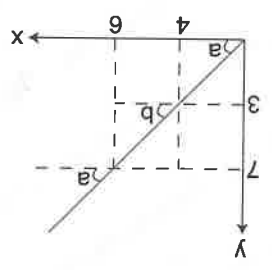
$$\frac{a^{\circ} + c^{\circ}}{b^{\circ}} - ?$$

- A) 3 B) 4 C) 5 D) 5 E) 7

13.



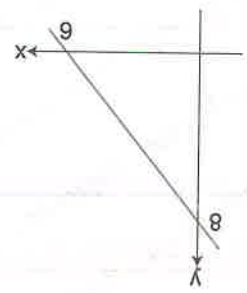
- A) 93 B) 94 C) 95 D) 96 E) 97



- I $x=38$
 $y=k$
 II $y=64$
 $x=L$
 (K,L) = ?

- A) 31, 82 B) 30, 85 C) 31, 85 D) 32, 82 E) 33, 84

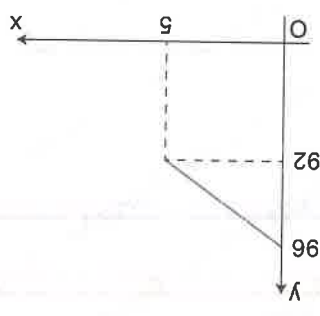
12.



- $y=48$
 $x=?$

- A) -25 B) -30 C) -35 D) -40 E) -45

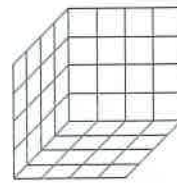
11.



- I. $x=40$ $y=?$
 II. $y=44$ $x=?$

- A) 64 B) 68 C) 64 D) 68 E) 72

14.

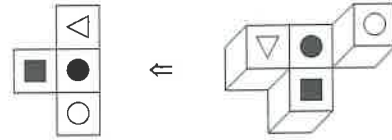


16.

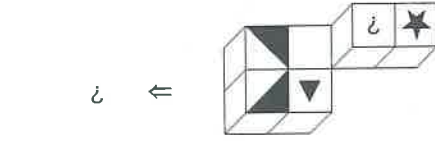
Yukarıdaki şekil birbirine eş 64 küçük küpten oluşmuştur. Bu küpün bütün yüzeyleri mavimsi boyanmıştır. Figura above is made from 64 small cubes equaling to each other all surfaces of this cube are painted with blue.

En az bir yüzeyi mavimsi boyanmış küçük küp kaç adet vardır? How many cubes with one blue surface at least are made?

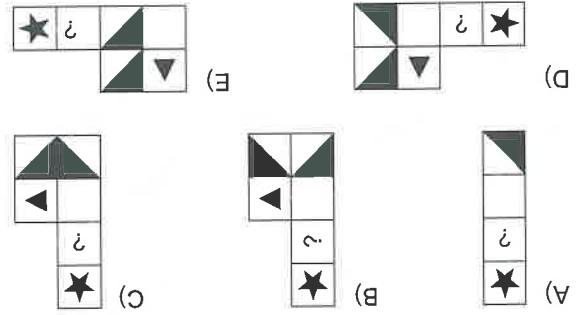
- A) 24 B) 48 C) 56 D) 60 E) 64



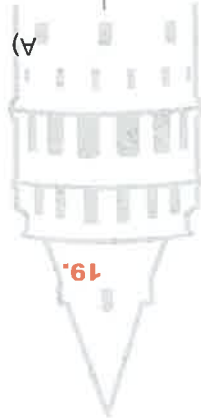
17.



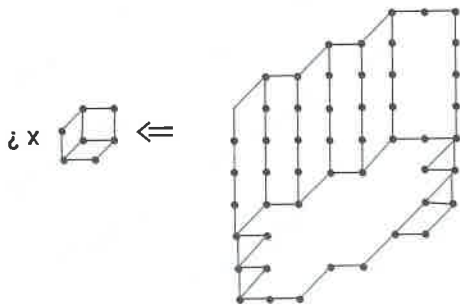
⇔



19.

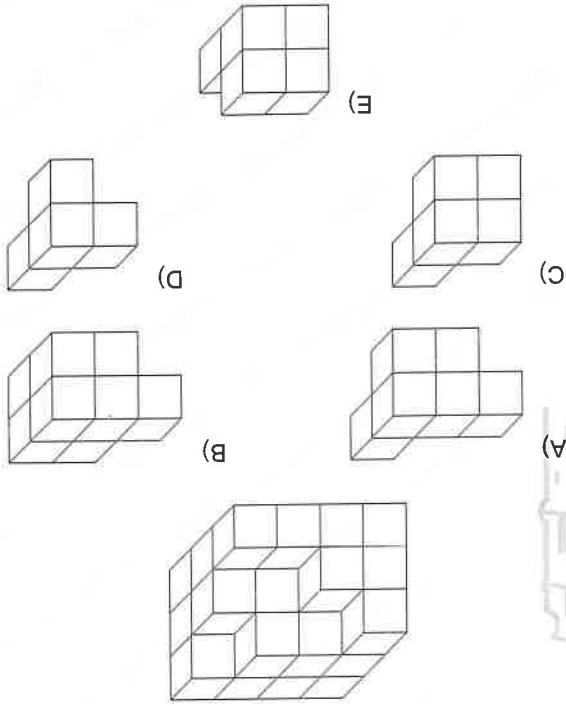


18.



⇔ x ?

- A) 75 B) 74 C) 73 D) 72 E) 71



IV	?	?	?	?	?	?
III	3	9	13	39	43	129
II	1	3	5	15	13	39
I	2	4	9	18	23	46

24.

- A) 3 12 9 27 24 72
- B) 5 15 12 36 33 99
- C) 4 16 13 42 39 156
- D) 2 8 9 36 33 132
- E) 3 15 12 60 57 164

- A) 17 □ 4 = 47
- B) 6 □ 7 = 29
- C) 5 □ 4 = 11
- D) 8 □ 8 = ?

26.

- A) 73
- B) 18
- C) 45
- D) 48
- E) 54

27. $x\Delta y = 3(y\Delta x) - y$
 $3\Delta 7 = ?$

- A) 2
- B) 3
- C) 5
- D) 7
- E) 11

25.

51	23	47
31	40	16
27	92	18
35	44	82



19	A	34
11	12	22
29	34	22

- A) 30
- B) 52
- C) 62
- D) 64
- E) 74



18	30
B	40

A+B=?

28.

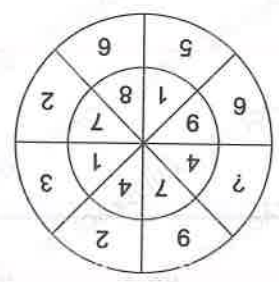
6	4
42	16

17	3
59	17

9	25
39	?

- A) 17
- B) 23
- C) 35
- D) 42
- E) 54

29.



- A) 7
- B) 6
- C) 5
- D) 4
- E) 3

1. $x^2 + x - 1 = 0 \Rightarrow S, S = ?$

- A) $\{-1, 1\}$
- B) $\{1, \sqrt{5}\}$
- C) $\{-\sqrt{5}, \sqrt{5}\}$
- D) $\left\{ \frac{1+\sqrt{5}}{2}, \frac{1-\sqrt{5}}{2} \right\}$
- E) $\left\{ \frac{-1+\sqrt{5}}{2}, \frac{-1-\sqrt{5}}{2} \right\}$

Matematik Matematis

30.

7	2	6	9	4
5	8	?	3	5
8	7	6	9	2

- A) 2
- B) 5
- C) 6
- D) 7
- E) 9

2. $\sqrt[4]{x + \sqrt{x}} = 2 \Rightarrow S, S = ?$

- A) $\{1\}$
- B) $\{\sqrt{2}\}$
- C) $\{-\sqrt{2}, \sqrt{2}\}$
- D) $\{-1, 1\}$
- E) \emptyset

3. $\left(\frac{x}{x^2+1}\right)^2 - 3\left(\frac{x}{x^2+1}\right) + 2 = 0 \Rightarrow \sum x = ?$

- A) -2
- B) -1
- C) 1
- D) 2
- E) 3

4. $x^2 - 5x + 2 = 0$ denkleminin kökleri x_1 ve x_2 dir Buna göre $x_1^3 + x_2^3 = ?$
The roots the equation $x^2 - 5x + 2 = 0$ are x_1 and x_2 accordingly, $x_1^3 + x_2^3 = ?$
A) 36 B) 45 C) 54 D) 81 E) 95
5. Denklem simetrik iki köklü olduğuna göre kökler çarpımı kaçtır?
Since the equation has two symmetrical roots, what is the product of the roots?
A) 3 B) 1 C) -1 D) -2 E) -3
6. $f(x) = ax^2 + bx + c$ $x_1 = 2 - \sqrt{3}$ $f(x) = ?$
A) $4x^2 - x + 1 = 0$
B) $x^2 + 4x + 1 = 0$
C) $x^2 - 4x - 1 = 0$
D) $x^2 - 4x + 1 = 0$
E) $2x^2 - 3x + 6 = 0$
7. $x^2 - 3x + 1 = 0 \Rightarrow |x_1^2 - x_2^2| = ?$
A) 1 B) 2 C) $\sqrt{5}$ D) $3\sqrt{5}$ E) $\sqrt{5} + 2$
8. $x^2 - 5x - 1 = 0$, $S, S = \{x_1, x_2\} \Rightarrow x_1 \cdot x_2^2 + x_2 \cdot x_1^2 = ?$
Denklem simetrik iki köklü olduğuna göre kökler çarpımı kaçtır?
Since the equation has two symmetrical roots, what is the product of the roots?
A) -5 B) -3 C) -1 D) 2 E) 5
9. $\frac{x(4-x)(x-5)}{16-x^2} = 0 \Rightarrow S, S = ?$
A) $\{-4\}$
B) $\{-4, 0\}$
C) $\{0, 5\}$
D) $\{-4, 0, 5\}$
E) $\{-4, 0, 4, 5\}$

10. $x^2 + 4x + 2 = 0$, $S, S = \{x_1, x_2\}$
 $\Rightarrow \frac{10}{1-x_2} + \frac{x_1^2 + 4x_1}{x_2^2 + 3x_2 + 3} = ?$

- A) -5 B) -4 C) -3 D) -2 E) -1

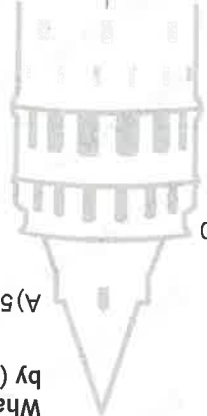
13. $P(x) = x^{2009} + x^{199}$
 $\frac{k}{P(x)} = \frac{k}{x^2 + x + 1}$
 $k = ?$

- A) x B) x-1 C) 2x+1 D) 1 E) -1

11. $\frac{|x-4|}{7+|x+6|} \leq 0$
 $SS = \{x_1, x_2, \dots, x_n\}$

n = ?

- A) 6 B) 7 C) 8 D) 9 E) 10
 A) 5x + 3 B) 4x + 2 C) 4x - 2 D) -3 E) 5



14. $P(x)$ polinomunun $(x^2 - x + 1)$ ile bölünenden kalan $(x + 2)$ olduğuna göre $P^2(x)$ polinomunun $(x^2 - x + 1)$ ile bölünenden kalan $x-2$ is the remainder from the division of the polynomial $P(x)$ by $(x^2 - x + 1)$.
 What is the remainder of $P^2(x)$ polynomial divided by $(x^2 - x + 1)$

- A) 5 B) 4 C) 3 D) 2 E) 1

If adelerinden kaç tanesi kesinlikle doğrudur ?
 How many of the statements are absolutely true ?

15. $\text{der}(P(x)) = a$, $\text{der}(Q(x)) = a$ $Q(x) \neq 0$ ve $a \geq b$ olmak üzere.
 I. $\text{der}(2P(x) - 4Q(x)) = a$
 II. $\text{der}(P(x) \cdot Q(x)) = a + b$
 III. $\text{der}(2P(x) \cdot 3Q(x)) = a$
 IV. $\text{der}\left(\frac{P(x)}{Q(x)}\right) = a - b$
 V. $\text{der}(P(Q(x))) = a \cdot b$

- A) 4 B) 3 C) 2 D) 1 E) 0

12. $P(x) = a \cdot x^{2018} + b \cdot x^{2017}$
 $\sqrt{P(x)} = \sqrt{x+2}$
 $2a - b = ?$

16. $\frac{101}{91} + \frac{91}{81} + \frac{81}{71} + \dots + \frac{11}{01} = ?$

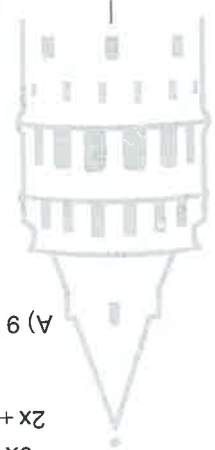
- A) 101
- B) 91
- C) 45
- D) 55
- E) $91+81+\dots+11$

17. $a, b, c \in \mathbb{N}$
 $\sqrt[3]{\frac{a}{b+1}} = \frac{3}{4}$
 $\sqrt[4]{\frac{b}{c-1}} = \frac{4}{3} \Rightarrow a = ?$

- A) $12c+10$
- B) $12c+11$
- C) $4c-5$
- D) $4c+5$
- E) 0

18. $\sqrt[30]{x \sqrt[55]{11}}$
 $\sqrt[k]{x^2+3x+5} = 11$
 $k = ?$

- A) 7
- B) 6
- C) 5
- D) 4
- E) 3



20.
$$\begin{cases} x+y-z = -1 \\ 3x-y+2z = 10 \\ 2x+3y-3z = -4 \end{cases}$$

 $x+y+z = ?$

- A) 9
- B) 10
- C) 11
- D) 12
- E) 13

21. $|x^2+x-12| = |x-3| \Rightarrow \sum x = ?$

- A) -5
- B) -2
- C) 0
- D) 2
- E) 5

19. $1 + \frac{1}{1+\frac{1}{1+\frac{1}{2}}} = ?$
 $1 + \frac{1}{1+\frac{1}{1+\frac{1}{2+\frac{1}{3}}}}$

- A) $\frac{3}{2}$
- B) $\frac{5}{4}$
- C) $\frac{9}{7}$
- D) $\frac{5}{9}$
- E) 1

22. $728 \cdot (3^6 + 1) \cdot (3^{12} + 1) = 27^x - 1 \Rightarrow \sqrt[3]{x} + x = ?$

- A) 6 B) 8 C) 10 D) 12 E) 24

25. $\frac{(1000)^7}{(0,0012 \cdot 10^{24}) + (0,013 \cdot 10^{23})} = ?$

- A) 10 B) 8 C) 5 D) $\frac{5}{2}$ E) 1

23. 8^8 sayısı 4 tabanda yazıldığında kaç basamaklı bir sayı elde edilir ?

How many digits obtained when 88 is written in 4 radix ?

- A) 13 B) 12 C) 11 D) 10 E) 9



- A) -2 B) -1 C) 1 D) $1 + \sqrt{2}$ E) $\sqrt{6}$

26. $\frac{\sqrt{3} - \sqrt{2} - 1}{1} = x\sqrt{6} + y\sqrt{2} + z \Rightarrow x + y + z = ?$

$x = ?$
 $\left(\frac{4}{1}\right)_5 + \left(\frac{3}{1}\right)_7 + 3^{15} = x \pmod{5}$

24. $x \in \mathbb{Z}/5$

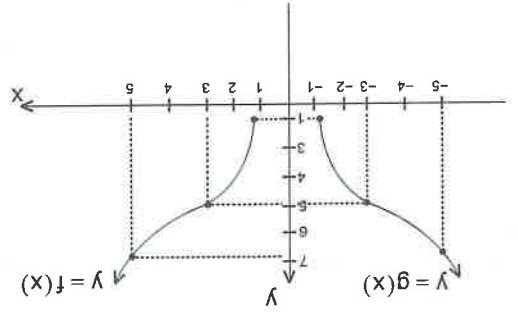
- A) 0 B) 1 C) 2 D) 3 E) 4

27. $\frac{2x + y + z}{2x - y + z} = \frac{4}{3} = \frac{y - z}{y - z} \Rightarrow \frac{z}{y} = ?$

- A) $-\frac{3}{1}$ B) $\frac{2}{1}$ C) $\frac{3}{1}$ D) $\frac{3}{2}$ E) $\frac{4}{1}$

28. $x \Delta y = 3x - y - 3(y \Delta x) \Rightarrow 2 \Delta 1 = ?$

- A) $-\frac{4}{3}$
- B) $-\frac{1}{4}$
- C) $\frac{1}{4}$
- D) $\frac{4}{3}$
- E) $\frac{4}{5}$



Grafıge göre $f(3) + (f \circ g)(-3) = ?$
 According to the graph $f(3) + (f \circ g) = ?$

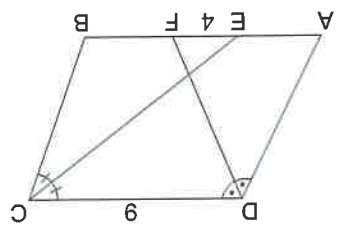
- A) 2
- B) 6
- C) 10
- D) 14
- E) 16

- A) 27
- B) 13
- C) 12
- D) 11
- E) 9

$\Rightarrow a + b = ?$

30. $f(x) = \frac{5x}{x+5}$ ve $f(x-2) = \frac{5x-b}{5x-a}$

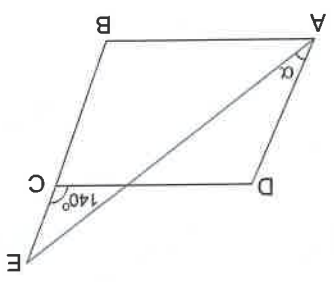
ABCD paralelkenar
 [DF] ve [EC] ağıortay
 [DF] and [EC] bisector
 |EF| = 4,
 |DC| = 9,
 $\hat{C}(ABCD) = ?$



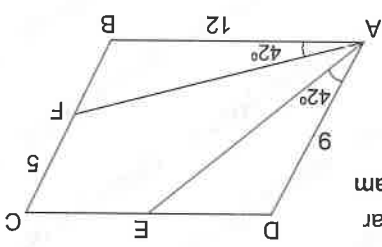
- A) 29
- B) 30
- C) 31
- D) 32
- E) 33

- A) 20
- B) 25
- C) 30
- D) 40
- E) 50

ABCD paralelkenar
 |BE| = |CD|
 $m(\widehat{DCE}) = 140^\circ$
 $\Rightarrow \alpha = ?$

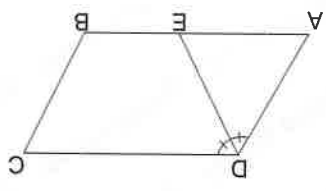


ABCD paralelkenar
 $m(\widehat{DAE}) = 42^\circ$
 $m(\widehat{BAF}) = 42^\circ$
 $|CF| = 5$
 $|AD| = 9$
 $|AB| = 12$
 $|EC| = ?$



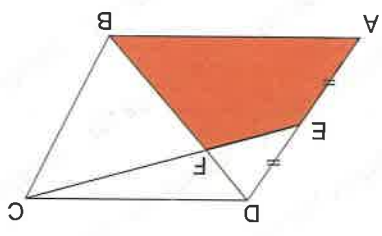
- A) 5 B) 6 C) 7 D) 8 E) 9

ABCD paralelkenar
 $|DE|$ agortay
 $[AE] \perp [EF]$
 $|DE| = 5$
 $|FB| = 1$
 $|EC| = ?$



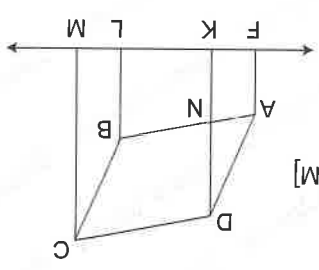
- A) 1 B) 2 C) 3 D) 4 E) 5

ABCD paralelkenar
 $|DE| = |EA|$
 $A(\widehat{FBC}) = 4 \text{ cm}^2$
 $A(\widehat{ABFE}) = ?$



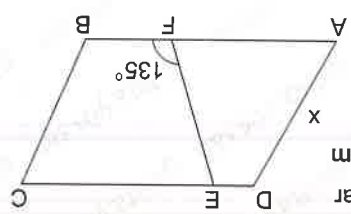
- A) 3 B) 4 C) 5 D) 6 E) 7

ABCD paralelkenar
 $[AF] \parallel [DK] \parallel [BL] \parallel [CM]$
 $[AF] = 3$
 $[BL] = 4$
 $[CM] = 9$
 $[DK] = x = ?$



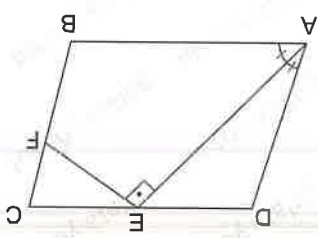
- A) 1 B) 2 C) 3 D) 4 E) 5
 A) 8 B) 9 C) 10 D) 11 E) 16

ABCD paralelkenar
 $m(\widehat{EFB}) = 135^\circ$
 $|FB| = 5$
 $|EC| = 12$
 $|EF| = 3\sqrt{2}$
 $x = ?$



- A) 3 B) 4 C) 5 D) 6 E) 7

ABCD paralelkenar
 $[AE]$ agortay
 $[AE]$ bisektor
 $[AE] \perp [EF]$
 $|DE| = 5$
 $|FB| = 1$
 $|EC| = ?$



- A) 1 B) 2 C) 3 D) 4 E) 5

12. ABCD dörtgen
 ABCD quadrilateral
 E, F, K orta noktalar
 E, F, K are midpoints
 $A(\triangle FKG) = 10 \text{ cm}^2$
 $|GF| = 2|EG|$
 $A(\triangle ABCD) = ?$

A) 40 B) 45 C) 50 D) 55 E) 60

9. ABCD paralelkenar
 ABCD parallelogram
 $A(\triangle CDE) = 4 \text{ cm}^2$
 $A(\triangle BED) = 16 \text{ cm}^2$
 $A(\triangle EBF) = ?$

A) 8 B) 9 C) 10 D) 11 E) 12

13. ABCD dörtgen
 ABCD quadrilateral
 K, L, M, N orta noktalar
 K, L, M, N are midpoints
 $A(\triangle MCL) = 7$
 $A(\triangle DNM) = 3$
 $A(\triangle ABCD) = 44$
 $A(\triangle ANK) + A(\triangle CLB) = ?$

A) 10 B) 11 C) 12 D) 13 E) 14

10. ABCD paralelkenar
 ABCD parallelogram
 $|DF| = |FE|$
 $A(\triangle CBK) = 1 \text{ cm}^2$
 $A(\triangle DFK) = 7 \text{ cm}^2$
 $A(\triangle CDE) = ?$

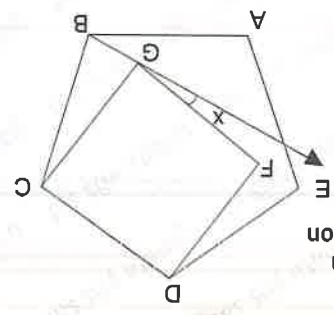
A) 28 B) 30 C) 32 D) 40 E) 45

14. ABCDEF düzgen altigen
 ABCDEF regular hexagon
 $|CD| = 6 \text{ cm}$
 $A(\triangle FKG) = ?$

A) $3\sqrt{3}$ B) $4\sqrt{3}$ C) $6\sqrt{3}$ D) $9\sqrt{3}$ E) $12\sqrt{3}$

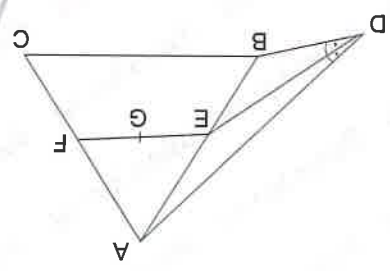
11. ABCD dörtgen
 ABCD quadrilateral
 $m(\angle DAB) + m(\angle ABC) = 120^\circ$
 $|DE| = |EC|$
 $|AF| = |FB|$
 $|AD| = 4$
 $|BC| = 8$
 $|EF| = ?$

A) 5 B) $2\sqrt{6}$ C) $2\sqrt{7}$ D) 6 E) 7



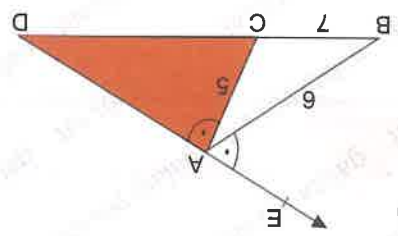
15. ABCDE düzğün beşgen
 ABCDEF regular pentagon
 CDFG kare
 CDFG square
 $x = ?$

- A) 9 B) 10 C) 12 D) 18 E) 19



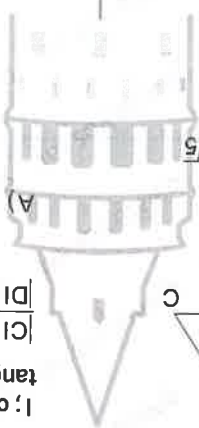
16. ABC bir üçgen
 [DE] : açıortay
 [DE]; bisector
 [EF] // [BC]
 $|BD| = \sqrt{5}$
 $|AD| = ?$

- A) $\sqrt{5}$ B) $2\sqrt{5}$ C) $3\sqrt{5}$ D) $4\sqrt{5}$ F) $5\sqrt{5}$

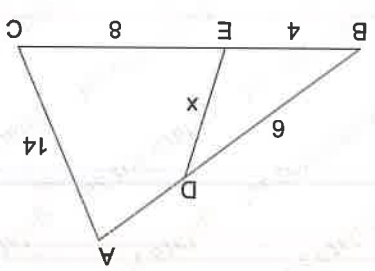


17. $m(\widehat{BAE}) = m(\widehat{CAD})$
 $|AC| = 5$
 $|AB| = 6$
 $|BC| = 7$
 $A(\widehat{ACD}) = ?$

- A) $30\sqrt{6}$ B) $35\sqrt{6}$ C) $40\sqrt{6}$ D) $45\sqrt{6}$ E) $50\sqrt{6}$

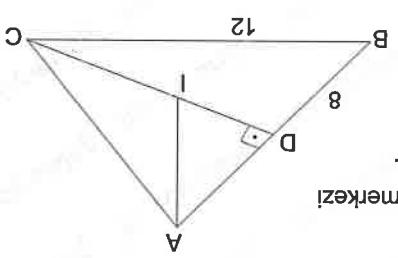


18. ABC bir üçgen
 ABC triangle
 $|AC| = 14$
 $|BD| = 6$
 $|AB| = 8$
 $|BE| = 4$
 $|EC| = 8$
 $x = ?$



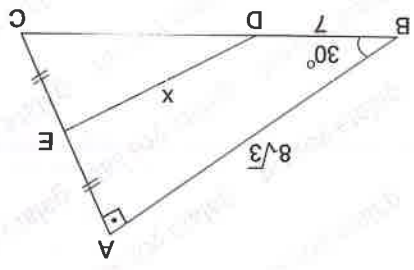
- A) 6 B) 7 C) 8 D) 9 E) 10

19. [AB] \perp [CD]
 I: iç teğet çemberin merkezi
 I: center of the inner
 tanger circle
 $\frac{|CI|}{|DI|} = ?$



- A) $\frac{3}{2}$ B) $\frac{1}{1}$ C) $\frac{3}{1}$ D) 1 E) $\frac{2}{3}$

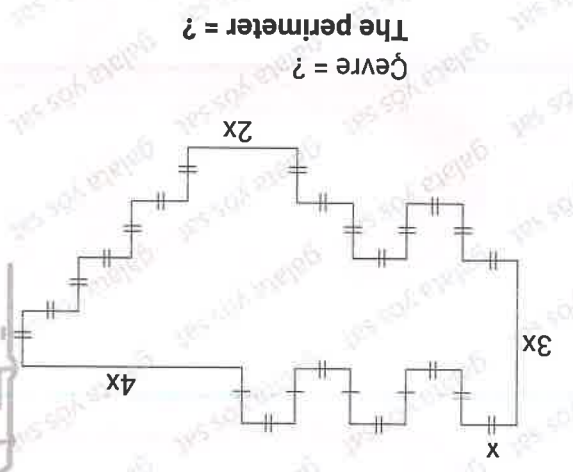
20. [AB] \perp [AC]
 $m(\widehat{ABC}) = 30^\circ$
 $|BD| = 7$
 $|AB| = 8\sqrt{3}$
 $x = ?$



- A) $2\sqrt{15}$ B) $\sqrt{61}$ C) $\sqrt{65}$ D) $7\sqrt{2}$ E) $7\sqrt{3}$

10

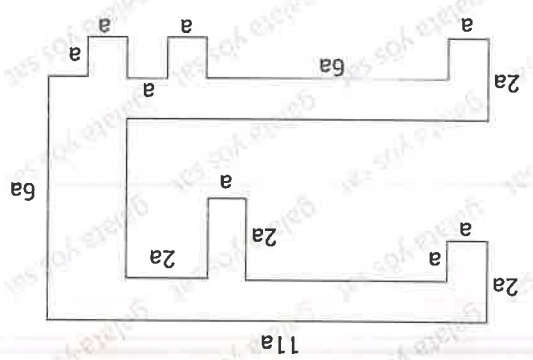
2.



Çevre = ?
The perimeter = ?

- A) 33
- B) 34
- C) 35
- D) 36
- E) 37

1.

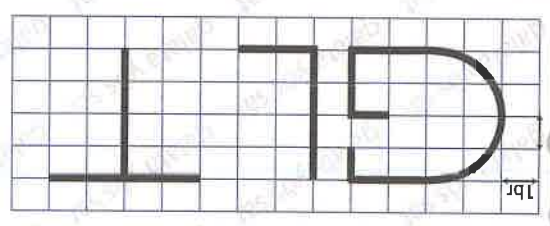


Çevre = ? a
The perimeter = ? a

- A) 64
- B) 65
- C) 66
- D) 67
- E) 68



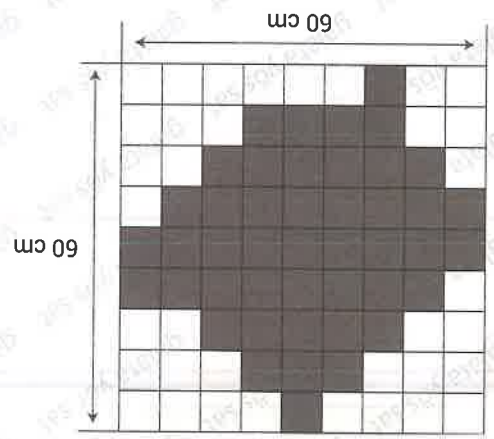
Tei pargalariya olusturulan yukaridaki Latin harfle-
rinin toplam uzunlugu kac birimdir?
How many units is the total length of the Latin
letters above created with wire pieces?



- A) $22 + 2\pi$
- B) $22 + 4\pi$
- C) $20 + 2\pi$
- D) $20 + 4\pi$
- E) $24 + 4\pi$

3.

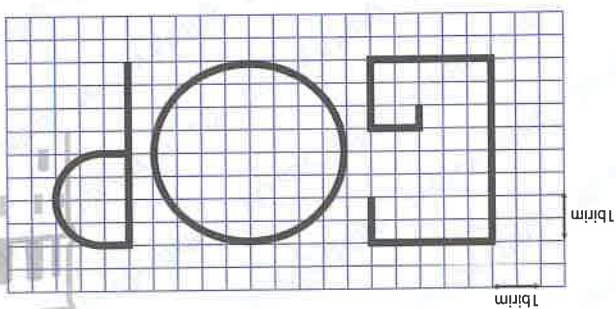
Yukarida verilen şeklide boyutlar 60 cm ve 60 cm
ve tüm kenarlar birbirine dik olduguna göre tarali
bölgenin çevresi kac cm'dir ?
The dimensions given above are 60 cm and 60 cm
and all sides are perpendicular to each other, how
many cms are the perimeter of the shaded area?



- A) 160
- B) 180
- C) 200
- D) 220
- E) 240

6.

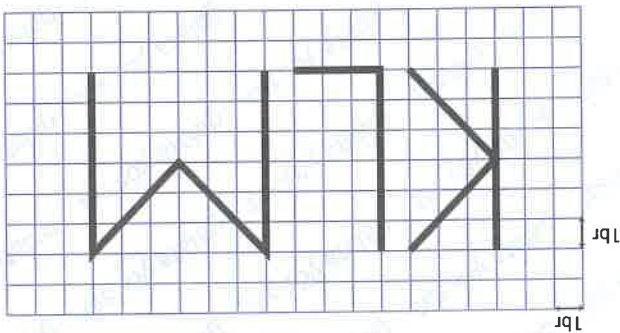
Tel parçalarıyla oluşturulan harflerin toplam uzunluğu kaç birimdir?
How many units is the total length of the letters formed by wire pieces?



- A) $18+5\pi$
B) $20+4\pi$
C) $18+\frac{9\pi}{2}$
D) $30+16\pi$
E) $36+16\pi$

5.

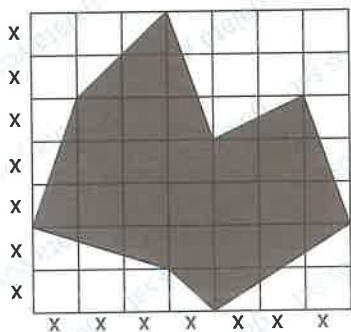
Tel parçalarıyla oluşturulan harflerin toplam uzunluğu kaç birimdir?
How many units is the total length of the letters formed by wire pieces?



- A) $27+12\sqrt{2}$
B) 39
C) 42
D) $25+10\sqrt{2}$
E) $20\sqrt{2}$

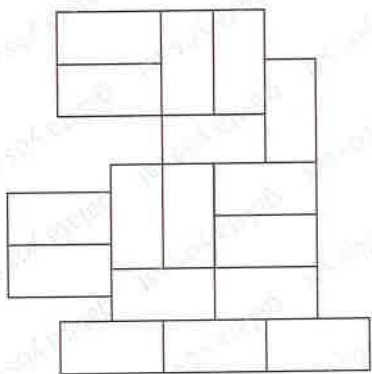
7.

Taralı Alan = ?
Shaded Area = ?



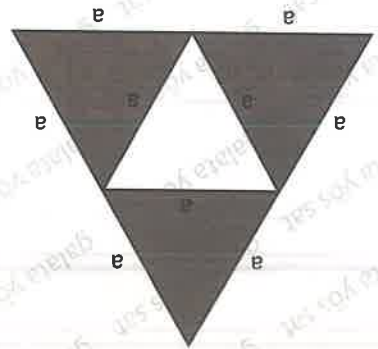
- A) 22,5
B) 23
C) 23,5
D) 24
E) 25,5

Alan 136 m^2 olan yukarıdaki şeklin çevresi kaç metredir?
The area of above figure is 136 m^2 what is the perimeter?



- A) 80
B) 76
C) 75
D) 74
E) 68

9.

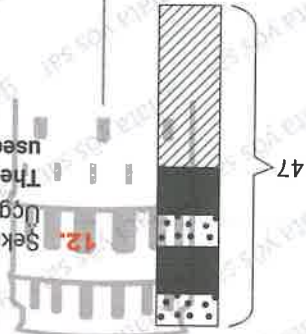
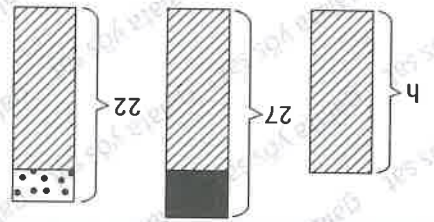


Taralı Alan = ? a^2
The shaded area = ? a^2

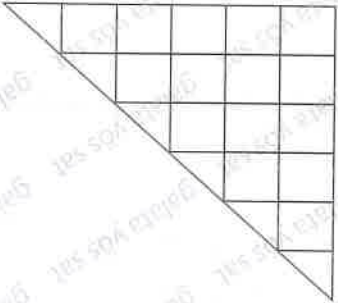
- A) $\frac{2}{\sqrt{3}}$
- B) $\frac{4}{\sqrt{3}}$
- C) $3\sqrt{3}$
- D) $5\sqrt{3}$
- E) $2\sqrt{3}$

10.

- A) 16
 - B) 17
 - C) 18
 - D) 19
 - E) 20
- $\Rightarrow h = ?$

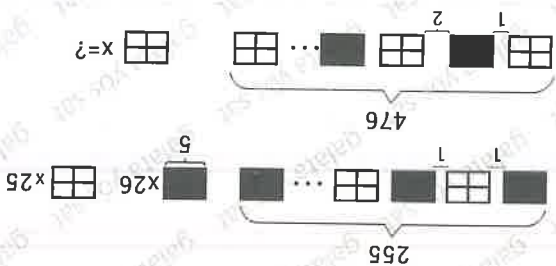


12. Sekilde gösterilen birim ile üçgen kaplanmaktadır. Üçgen bu birim karelerden kaç tanesi ile kaplanmıştır? The triangle is covered by unit. How many units are used to cover the triangle?



- A) 15
- B) 16
- C) 17
- D) 18
- E) 19

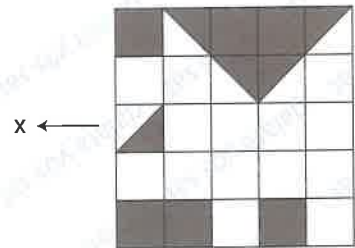
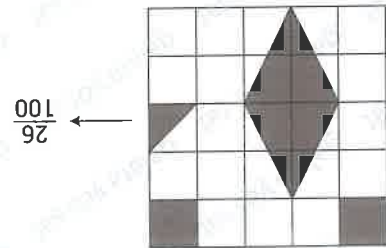
11.



11. Beyaz kutudan kaç tane vardır? How many white boxes are there?

- A) 39
- B) 40
- C) 44
- D) 45
- E) 46

13.

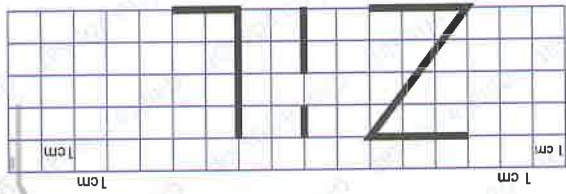


Bu ilişkiye göre x kaç olmalıdır ?
What should be x according to this relation?

- A) $\frac{100}{29}$ B) $\frac{100}{30}$ C) $\frac{100}{34}$ D) $\frac{100}{40}$ E) $\frac{100}{42}$

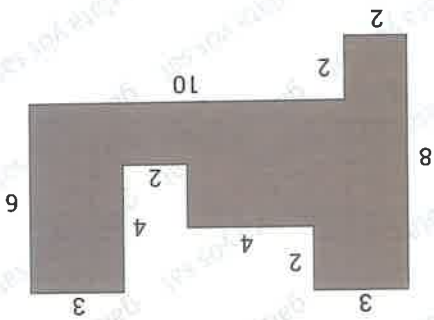
14.

Tel parçalarıyla yapılmış 'zil' kelimesinde kaç cm tel kullanılmıştır ?
How many cms wires are used in the word "Zil" made with wire pieces?



- A) 18 B) 13 C) 20 D) 21 E) 22

15.

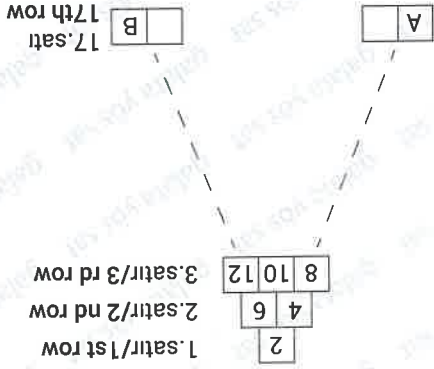


Şeklin alanı kaç birim karedir ?
How many square units is the area of the shape?

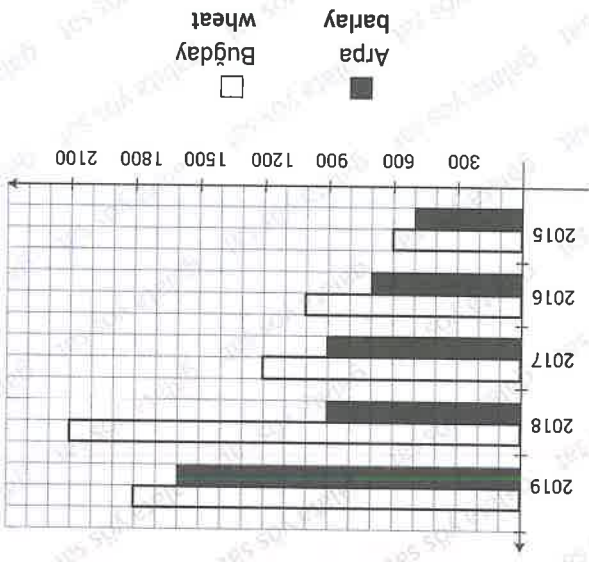
- A) 55 B) 60 C) 65 D) 70 E) 75

- A) 506 B) 580 C) 590 D) 618 E) 726

A+B=?



17 - 18 sorularını aşağıdaki tabloya göre cevaplayınız.
Answer questions 17 - 18 according to the table below.



17. Buğdayın max üretimi hangi yılda olmuştur ?
In which year was the max production of wheat ?
- A) 2015 B) 2016 C) 2017 D) 2018 E) 2019

18. Arpanın üretimi 2018 yılında 2015 yılına göre yüzde kaç artmıştır ?
How much did barley production increase in 2018 compared to 2015?
- A) 100 B) 80 C) 60 D) 40 E) 20

20.

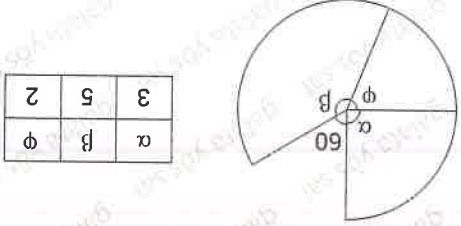
$$= K \cdot L + P^2 \cdot M + L^3 P$$

K	L	M	P
3	0	4	A

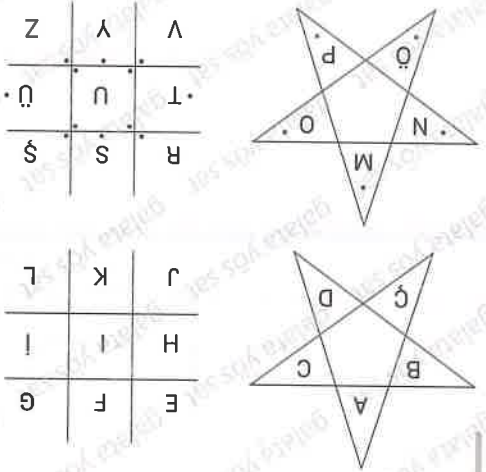
$\Rightarrow A = ?$

- A) 10 B) 25 C) 30 D) 40 E) 50

α , % kaçtır ? / what is the alpha percentage?



19.



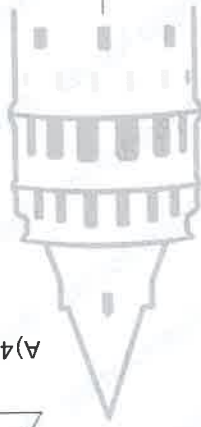
Aşağıdaki 21. ve 22. sorularını yukarıdaki verilere göre cevaplayınız.

Answer questions 21 and 22 below according to the above data.

A)56 B) 59 C) 61 D) 63 E) 67

8	2	3	4	1
?	45	94	39	
3	1	5	2	
1				

26.



A)130 B) 131 C) 151 D)162 E) 174

23. 6, 21, 37, 55, 76, 101, ?

A) YARDIMCI
B) YAPIMLIK
C) YARENLIK
D) YAZARLIK
E) SAVURGAN

22. 22.

A) A)
B) B)
C) C)
D) D)
E) E)

21. ÖZGÜRLÜK

25.

13 = 42
 10 = 44
 5 = 48
 8 = ?

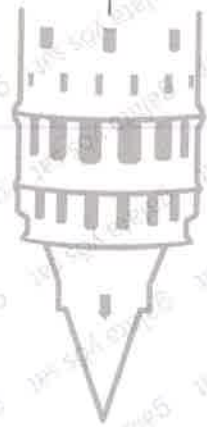
A)0 B) 1 C) 2 D) 3 E) 4
62 $\hat{=}$ 84 = 5
41 $\hat{=}$ 22 = 5
26 $\hat{=}$ 46 = 1
83 $\hat{=}$ 13 = ?

24.

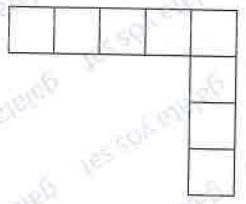
9	45	5	C
2	3	B	1
6	A	10	3
3	5	4	3

C-A-B=?

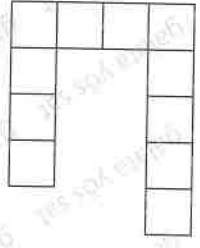
- A) 27 B) 25 C) 23 D) 22 E) 20



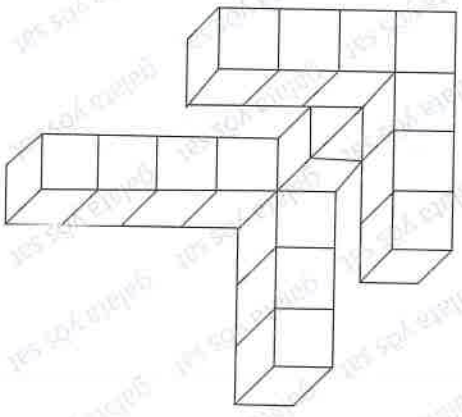
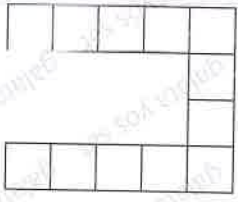
III.



II.



I.



Which of the drawings in different perspectives of the figure below is correct?

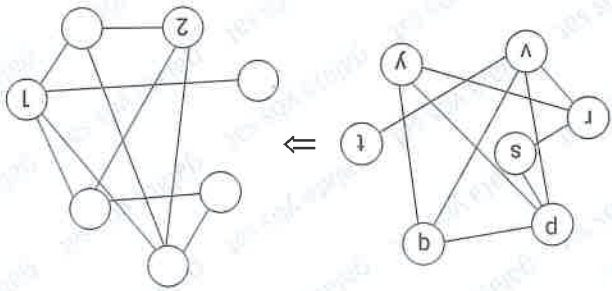
Aşağıdaki görüntüsü verilen bir yapının farklı yönlerden görünmelerine ilişkin çizimlerden hangisi doğrudur ?

29.

- A) xx B) xxx C) xxx D) yyy E) xxxy



30.



1, 2 = ?

- A) b/q B) v/y C) v/p D) p/r E) s/y

3. Aşağıdakilerden kaç tanesi doğrudur ?
How many of the following are true?

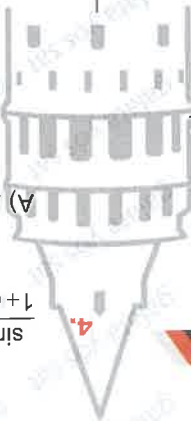
- I. $\cos\left(\frac{7\pi}{2} + x\right) = \sin x$
 II. $\cos(-5\pi - x) = -\cos x$
 III. $\tan\left(\frac{3\pi}{2} - x\right) = \cot x$
 IV. $\cot\left(\frac{\pi}{2} - x\right) = \tan x$
 V. $\sin(x - 3\pi) = \sin x$

- A) 1 B) 2 C) 3 D) 4 E) 5

Matematik Maths

1. $\frac{\cos 90^\circ + \sin 540^\circ + \tan 360^\circ}{\sin 270^\circ + \cos 180^\circ} = ?$

- A) -1 B) 0 C) 1 D) 2 E) 3
 A) 2 sin x B) 3 cos x C) 2 D) 1 E) -1



4. $\frac{\sin^2 x}{1 + \cos x} + \frac{1 - \cos x}{\sin^2 x} = ?$

5. $A = \sin^2 x + \cos^2 x$
 $B = \tan x \cdot \cot x$
 $\Rightarrow A + B = ?$
 A) -1 B) 0 C) 1 D) 2 E) 3

- A, B, C nin işaretlerini sıralayınız.
 List the sign of A, B, C.
 A) +, +, - B) -, +, - C) +, -, - D) -, -, - E) +, +, +

2. $A = \sin 3620^\circ$
 $B = \cos 7210^\circ$
 $C = \tan 1453^\circ$

6. ABC üçgeninde
For the ABC triangle

$$\frac{\sin(A+B) + \sin C}{\cos(A+B) - \cos C} = ?$$

- A) $\sin C$
- B) $\cot C$
- C) $-\tan C$
- D) $-\cot C$
- E) $-\sec C$

7. $0 < x < \frac{\pi}{2}$

$$\sqrt{1 + \sin(2x)} - \cos^2 x - \sin^2 x = ?$$

- A) -1
- B) 0
- C) 1
- D) $\cot x$
- E) $\tan x$

8. $\frac{Z}{5}$, $f(x) = 2x - 3$, $g(x) = x^2 + 3x + 5$
 $\Rightarrow (f^{-1} \circ g)(3) = ?$

- A) 3
- B) 4
- C) 2
- D) 1
- E) 0

$$0,2 - \frac{0,2}{0,2} - \frac{0,2}{0,2} = ?$$

- A) 0,04
- B) $\frac{99}{4}$
- C) 0,04
- D) $\frac{99}{8}$
- E) 0,08

13. $x^2 - 4x + 1 = 0$, S.S. = $\{x_1, x_2\}$
 $\Rightarrow x_1^2 + 4x_2 - 4 = ?$

- A) 8
- B) 9
- C) 10
- D) 11
- E) 12

12. $a = \sqrt{2} + 1 \Rightarrow a(a-1)(a-2) = ?$

- A) $\sqrt{2}$
- B) $-\sqrt{2}$
- C) $3 - 2\sqrt{2}$
- D) $3 + 2\sqrt{2}$
- E) 1

11. $(-x)^5 \cdot (-x^3)^2 \cdot x^{-12} \cdot (-x)^{-3} = ?$

- A) $\frac{x^2}{1}$
- B) $-x^2$
- C) $\frac{x^4}{1}$
- D) $\frac{x^3}{1}$
- E) x^4

10. $\frac{|2x+10|}{|x+2x+3|+2|x-1|}$

İfadesinin en büyük değeri kaçtır ?
 what is the highest value of the expression ?

- A) $\frac{1}{2}$
- B) $\frac{2}{3}$
- C) 2
- D) $\frac{2}{5}$
- E) 5

14. $x^2 - (m+3)x - 5 = 0$, $S.S = \{x_1, x_2\}$
 $\sqrt{x_1^2 + 2x_1 \cdot x_2 + x_2^2} \leq 4 \Rightarrow \sum m = ?$

- A) -32 B) -27 C) -24 D) -21 E) -17

15. $x^8 - x^7 - 6x^6 < 0 \Rightarrow \sum x = ?$

- A) -2 B) -1 C) 0 D) 1 E) 2

16. $\frac{x+3}{(x-2)(x+1)} \leq 0 \Rightarrow S.S = ?$

- A) $(-\infty, -3] \cup [-1, 2)$
 B) $(-\infty, -3) \cup (0, 2)$
 C) $(-\infty, -3) \cup [-1, 2]$
 D) $(-3, 2)$
 E) $(-\infty, -2) \cup (-1, 3]$

17. $2x \cdot (x^3 - x^2 - 20x)^{\frac{1}{2}} \leq 0$, $S.S = \{x_1, x_2, \dots, x_n\}$
 $\Rightarrow n = ?$

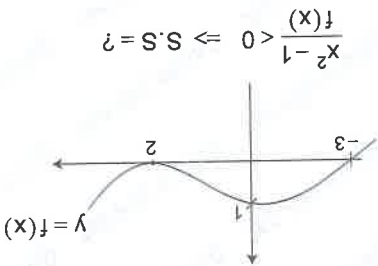
- A) 1 B) 2 C) 3 D) 4 E) 5

20.

$\frac{x}{y} \cdot \frac{y+z}{x+z} = \frac{y}{z}$, $x \cdot y \cdot z = 12$
 $\Rightarrow (y+z) \cdot (x+z) \cdot (x+y) = ?$

- A) 24 B) 36 C) 48 D) 72 E) 96

19.



$\frac{f(x)}{x^2 - 1} > 0 \Rightarrow S.S = ?$

- A) $(-\infty, -3) \cup \{2\}$
 B) $(-3, 2)$
 C) $(-3, 2] - \{1\}$
 D) $(-\infty, -3) \cup (-1, 1)$
 E) $(-\infty, -1) \cup (1, 3)$

- A) 1 B) 2 C) 3 D) 4 E) 5

18. $\frac{|x^2 - 9|}{x^2 - 4x + 4} \leq 0$, $S.S = \{x_1, x_2, \dots, x_n\}$
 $\Rightarrow n = ?$

21.

$$\frac{5x+3}{x^2-7x+12} = \frac{A}{x-3} + \frac{B}{x-4}$$

$$\Rightarrow A+B=?$$

- A) 4 B) 5 C) 6 D) 7 E) 8

24.

$$x_1, x_2 \in \mathbb{R} \text{ SS: } \{x_1, x_2\}$$

$$x^2+5x-7=0$$

$$\Rightarrow x_1^3+5x_1^2-4x_1+x_2^2 \cdot x_2-4x_2=?$$

- A) 5 B) 10 C) 15 D) 20 E) 25

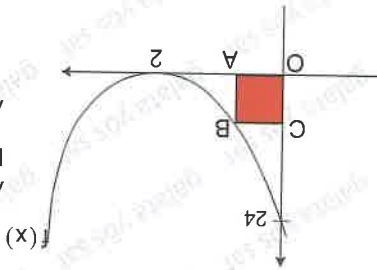
22.

$$(x^3+3x+1)^2 = ax^6+bx^5+cx^4+dx^3+ex^2+fx+h$$

$$a+c+e+h=?$$

- A) 14 B) 15 C) 16 D) 17 E) 18

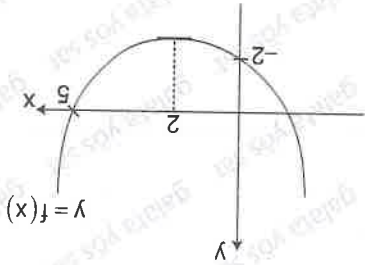
25.



AOCB kare ise
If AOCB is a square.
A(AOCB) = ?

- A) $\frac{1}{4}$ B) $\frac{8}{1}$ C) $\frac{1}{16}$ D) $\frac{4}{9}$ E) $\frac{64}{9}$

26.



- A) $-\frac{5}{16}$ B) -3 C) $-\frac{9}{14}$ D) $-\frac{5}{12}$ E) $-\frac{5}{11}$

23.

$$x^2-4x+1=0, \text{ S.S} = \{m, n\}$$

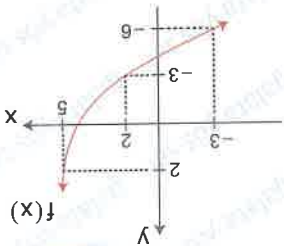
$$\Rightarrow \frac{m}{m^2} + \frac{n}{n^2} = ?$$

- A) 12 B) 24 C) 36 D) 48 E) 52

27. $A = [-3, 7]$, $B = [3, 10]$ ve $C = (-5, 4)$
 $\Rightarrow (A \cup B) - C = ?$

- A) $(-3, 4)$
- B) $(3, 4)$
- C) $[4, 10)$
- D) $(-5, 3)$
- E) $(-5, 3]$

30.



$f[f[f(3x-4)]] = -6$
 $\Rightarrow x = ?$

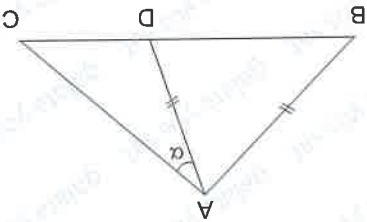
- A) 5
- B) 3
- C) 2
- D) -2
- E) -3

28. $xy + y - x + 2 = 0 \Rightarrow f(x) = ?$

- A) $\frac{x-1}{x+2}$
- B) $\frac{x-1}{x+1}$
- C) $\frac{x-2}{x+1}$
- D) $\frac{2-x}{x+1}$
- E) $\frac{2-x}{x}$

1.

$[AB] \perp [AC]$
 $m(\angle ACB) = 40^\circ$
 $|AB| = |AD|$
 $\Rightarrow \alpha = ?$



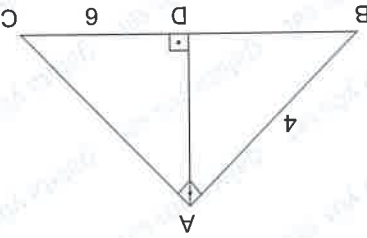
- A) 10
- B) 20
- C) 30
- D) 40
- E) 50

29. $a, b, c \in \mathbb{N}$
 $x = 3^2 \cdot 2^3 \cdot 5^2$, $y = 3^2 \cdot 2^2 \cdot 5$, $z = 3^3 \cdot 2^4 \cdot 5^6$
 $OKEK(x, y, z) = 3600$, $OEBB(x, y, z) = 36$
 $\Rightarrow a + b + c = ?$

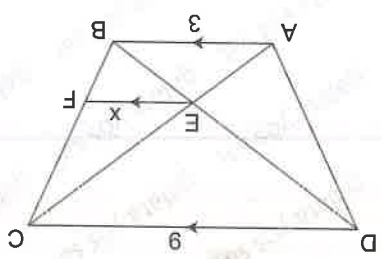
- A) 6
- B) 7
- C) 8
- D) 9
- E) 10

2.

ABC bir üçgen
 $[AB] \perp [AC]$
 $[AD] \perp [BC]$
 $|AB| = 4$ cm
 $|CD| = 6$ cm
 $A(\triangle ABC) = ?$

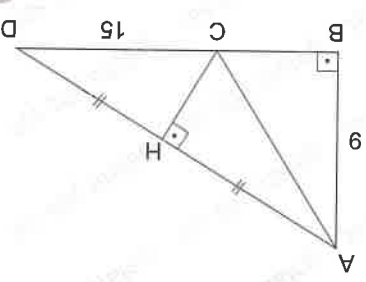


- A) $4\sqrt{3}$
- B) $6\sqrt{3}$
- C) $8\sqrt{3}$
- D) $9\sqrt{3}$
- E) $10\sqrt{3}$



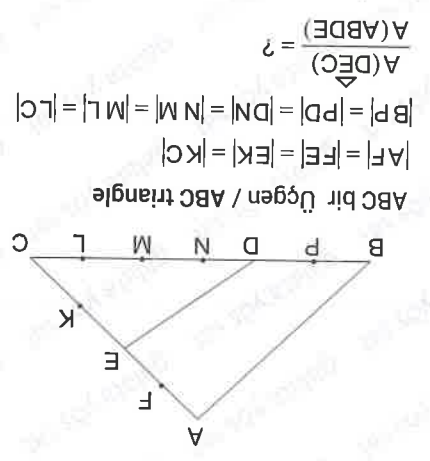
3. $[AB] \parallel [EF] \parallel [CD]$
 $|AB| = 3$ cm
 $|CD| = 9$ cm
 $|EF| = x = ?$

- A) 2 B) $\frac{4}{9}$ C) 3 D) 6 E) 12



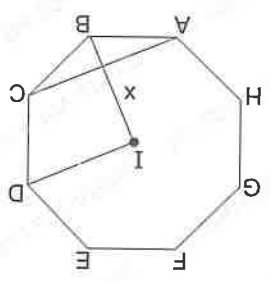
4. ABC bir üçgen
 $[AB] \perp [BD]$
 $[AD] \perp [CH]$
 $|AH| = |HD|$
 $|AB| = 9$ cm
 $|CD| = 15$ cm
 $|AD| = ?$

- A) $9\sqrt{10}$ B) $10\sqrt{10}$ C) $12\sqrt{10}$ D) $14\sqrt{10}$ E) $19\sqrt{10}$



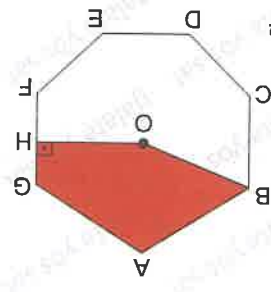
5. ABC bir üçgen / ABC triangle
 $|AF| = |FE| = |EK| = |KC|$
 $|BP| = |PD| = |DN| = |NM| = |ML| = |LC|$
 $\frac{A(\triangle DEC)}{A(\triangle ABDE)} = ?$

- A) $\frac{1}{3}$ B) $\frac{1}{2}$ C) $\frac{2}{3}$ D) 1 E) $\frac{4}{3}$



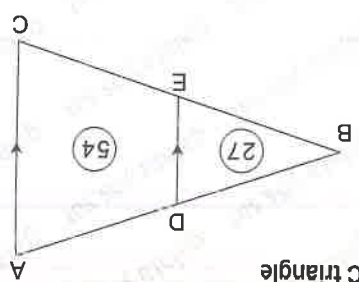
7. ABCDEFGH düzgün sekizgen
 I : içteğet gemberinin merkezi :
 center of the inner tangent circle
 $|AC| = 5\sqrt{2}$ cm
 $|BI| = x = ?$

- A) 2 B) 3 C) 4 D) 5 E) 7



8. ABCDEFG düzgün yedigen
 ABCDEFG regular heptagon
 O : ağırlık merkezi
 O : center of gravity
 $A(ABOHG) = 25$ cm²
 $A(ABCDEFG) = ?$ cm²

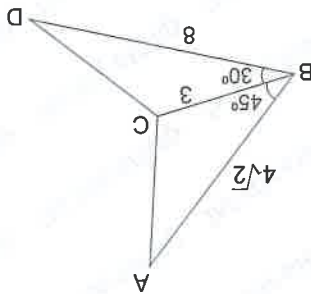
- A) 50 B) 60 C) 70 D) 80 E) 85



6. ABC bir üçgen / ABC triangle
 $[DE] \parallel [AC]$
 $|BE| = x$ cm
 $|EC| = y$ cm
 $A(\triangle BDE) = 27$ cm²
 $A(\triangle DEC) = 54$ cm²
 $\frac{y}{x} = ?$

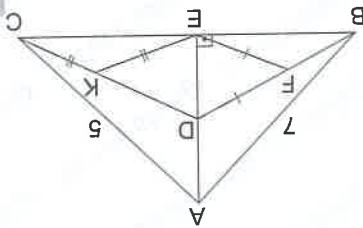
- A) $\frac{\sqrt{3}-1}{2}$ B) $\frac{\sqrt{3}}{2}$ C) $\frac{\sqrt{3}+1}{2}$ D) $\frac{\sqrt{3}+2}{2}$ E) $\frac{\sqrt{3}-2}{2}$

9. $\widehat{A(CBD)} = 30^\circ$
 $m(\widehat{ABC}) = 45^\circ$
 $|BC| = 5$
 $|AB| = 4\sqrt{2}$
 $|BD| = 8$
 $A(ABDC) = ?$



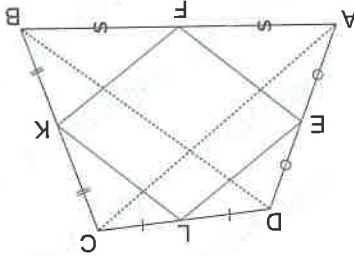
- A) 10 B) 12 C) 14 D) 20 E) 22

10. $[AE] \perp [BC]$
 $|FD| = |EF|$
 $|EK| = |KC|$
 $|AC| = 5$
 $|AB| = 7$
 $|EF| = b$
 $|EK| = a$
 $b^2 - a^2 = ?$



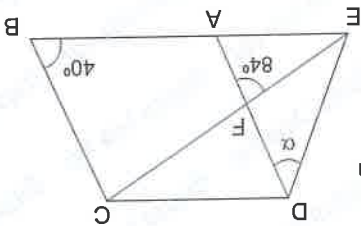
- A) 2 B) 6 C) 8 D) 10 E) 12

11. ABCD dörtgen
 E, F, K, L orta noktalar
 E, F, K, L midpoints
 $|BD| = 7$ cm
 $|AC| = 13$ cm
 $G(EFKL) = ?$



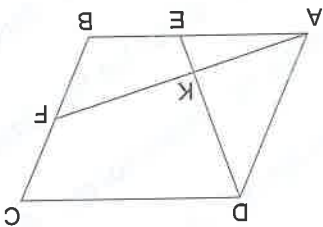
- A) 20 B) 23 C) 31 D) 38 E) 43

12. ABCD paralelkenar
 $|AB| = |CE|$
 $m(\widehat{ABC}) = 40^\circ$
 $m(\widehat{EFA}) = 84^\circ$
 $m(\widehat{EDA}) = \alpha = ?$



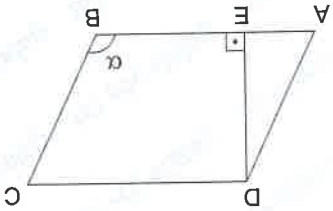
- A) 20 B) 24 C) 25 D) 30 E) 33

13. ABCD paralelkenar
 $2|CF| = 3|BF|$
 $|AE| = |EB|$
 $|AF| = 24$ cm
 $|KF| = ?$



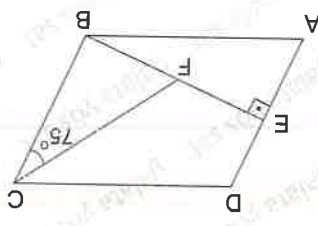
- A) 8 B) 10 C) 12 D) 13 E) 14

14. ABCD paralelkenar
 $[DE] \perp [AB]$
 $|DE| = \sqrt{15}$ cm
 $|AE| = \sqrt{5}$ cm
 $\alpha = ?$



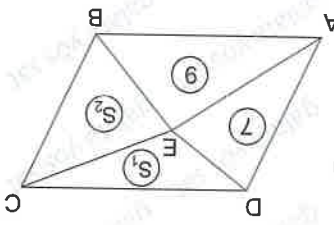
- A) 102 B) 120 C) 125 D) 126 E) 133

15. ABCD paralelkenar
 $[DA] \perp [EB]$
 $|FB| = 2|EF|$
 $m(\angle BCF) = 75^\circ$
 $|FC| = 16$ cm
 $A(ABCD) = ?$



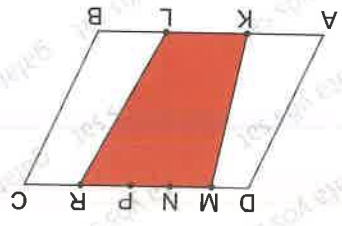
- A) 45 B) 50 C) 60 D) 75 E) 96

16. ABCD paralelkenar
 $A(\triangle ADE) = 7$ cm²
 $A(\triangle ABE) = 9$ cm²
 $S_2 - S_1 = ?$



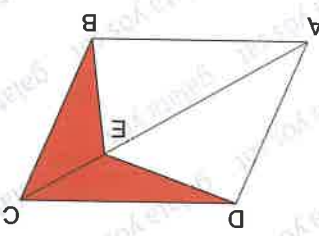
- A) 2 B) 3 C) 4 D) 5 E) 6

18. ABCD paralelkenar
 $|DM| = |MN| = |NP| = |PR| = |RC|$
 $|AK| = |KL| = |LB|$
 $A(KLRM) = 14$ cm²
 $A(ABCD) = ?$



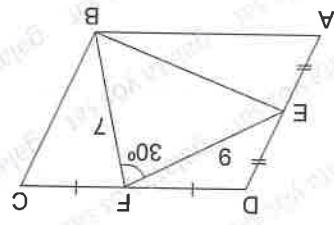
- A) 20 B) 24 C) 28 D) 30 E) 32

19. ABCD paralelkenar,
 $\angle C$ köşegen
 $\angle AC$ diagonal
 $m(\angle AEB) = 45^\circ$
 $|AC| = 7$ | $EC| = 7$ cm
 $|EB| = 4$ cm
 $A(\triangle BEC) = ?$



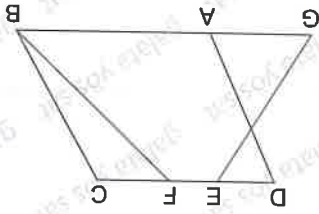
- A) 49 B) 28 C) 7√2 D) 3√2 E) 2√2

17. ABCD paralelkenar
 E ve F orta noktalar
 E ve F are midpoints
 $|FB| = 7$ cm
 $|EF| = 9$ cm
 $m(\angle FBE) = 30^\circ$
 $A(ABCD) = ?$



- A) 30 B) 40 C) 42 D) 45 E) 56

20. ABCD paralelkenar
 $|CD| = 5|GA|$
 $|EF| = 2|GA|$
 $A(\triangle GFE) = 32$
 $A(ABCD) = ?$



- A) 40 B) 50 C) 64 D) 64 E) 80



Başarıya Götüren



Mat	Problem Solving	Problem Solving
Mat	Problem Solving	Problem Solving
Mat	Problem Solving	Problem Solving

Mat	Problem Solving	Problem Solving
Mat	Problem Solving	Problem Solving
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Mat	Problem Solving	Problem Solving

Mat	Problem Solving	Problem Solving
Mat	Problem Solving	Problem Solving
Mat	Problem Solving	Problem Solving

KTS-17

$$\begin{array}{r} AB3CA \\ + BDAB4 \\ \hline G8C19 \end{array} \quad G=?$$

1. A) 4 B) 5 C) 6 D) 7 E) 8

$$\frac{A}{G} + \frac{A}{24} = 3G + A = ?$$

2. A) 56 B) 64 C) 60 D) 68 E) 62

$$\begin{array}{r} K5KL \\ - K3 \\ \hline 10L \end{array} \quad \begin{array}{r} 293 \\ - 27K \\ \hline 14 \end{array} \quad \Rightarrow K+L=?$$

5. A) 8 B) 12 C) 15 D) 18 E) 21



$$\frac{xxy}{zz} + \frac{ylyz}{zz} \Rightarrow x+y+z+t=?$$

6. A) 13 B) 12 C) 15 D) 14 E) 16

$$\frac{KLL}{KK} - \frac{645}{KK} \Rightarrow K+L=?$$

3. A) 9 B) 10 C) 11 D) 12 E) 13

$$\frac{AB}{A} + \frac{C4}{A} = \frac{2}{A} \quad A=?$$

4. A) 2 B) 6 C) 7 D) 9 E) 10

$$\begin{array}{r} 4LM \\ + 4L \\ \hline \dots \\ \dots \\ \dots \\ + ZABCO \\ \hline \end{array}$$

$$A+B+C=?$$

7. A) 14 B) 11 C) 9 D) 8 E) 7

$$\begin{array}{r} x y z \\ \times k m 9 \\ \hline x m k \cdot \\ + x y z \\ \hline 460 y 3 \end{array}$$

$$k+m=?$$

10. A) 2 B) 3 C) 5 D) 8 E) 9

$$\begin{array}{r} abc \\ \times xy9 \\ \hline c \cdot y \cdot \\ abc \\ + \dots c \cdot \\ \hline 11c7a6 \end{array}$$

$$= x=?$$

8. A) 2 B) 3 C) 4 D) 5 E) 7

$$\begin{array}{r} 3KL \\ \times M3 \\ \hline \dots 09 \cdot \\ + \dots \cdot 5 \\ \hline \end{array}$$

$$K+L+M=?$$

9. A) 24 B) 19 C) 16 D) 14 E) 13

$$\begin{array}{r} XY7 \\ - ZZZ \\ \hline ZX6 \end{array}$$

$$X+Y=?$$

11. A) 5 B) 6 C) 7 D) 18 E) 9



12. xyz üç basamaklı bir sayı. xyz Three - digits number.

$$a \cdot x = 6,2$$

$$a \cdot y = 6,6$$

$$a \cdot z = 6$$

$$a \cdot (xyz) = ?$$

- A) 250 B) 365 C) 582 D) 692 E) 763

13. $\frac{x}{y} = \frac{10}{11}$ olduğuna göre $x + y = ?$

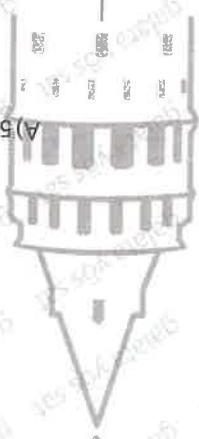
- A) 1110
- B) 100110
- C) 10111
- D) 10100
- E) 10110

- 52 ☆ 23 = 33
- 31 ☆ 43 = 76
- 25 ☆ 71 = 93
- 72 ☆ 23 = ?

- A) 75
- B) 52
- C) 97
- D) 103
- E) 151

14. 2, 5, 13, 36, 104, ?

- A) 312
- B) 309
- C) 307
- D) 305
- E) 303



17.

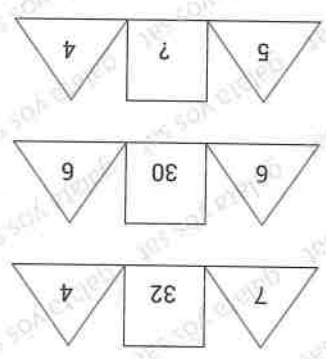
18.

☆	68	42	53	62
52	2	B	6	
74	A	10		

- A) 12
- B) 14
- D) 18

E) 20

A + B = ?



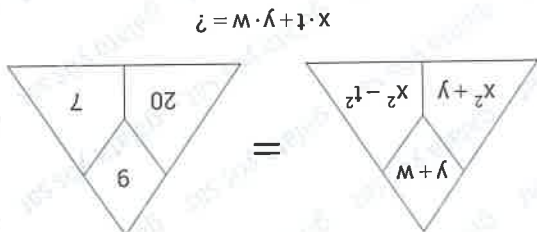
- A) 25
- B) 26
- C) 30
- D) 24
- E) 40

- A) 56
- B) 57
- C) 66
- D) 67
- E) 46

$c - a + b = ?$

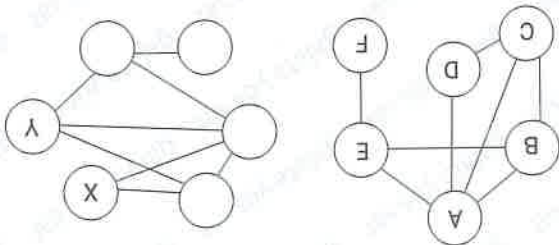
x	a	b	c
a		c	
49b			64a
c	b		

19.



- A) 24 B) 32 C) 48 D) 56 E) 64

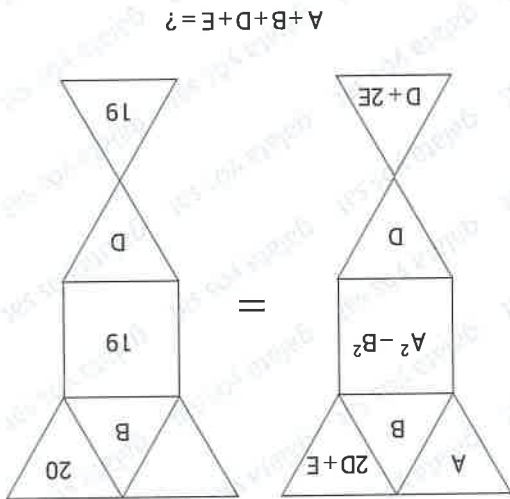
20.



X, Y = ?

- A) D, B B) A, E C) D, C D) B, D E) C, B

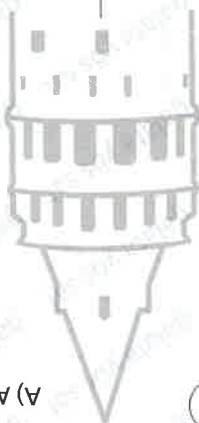
21.



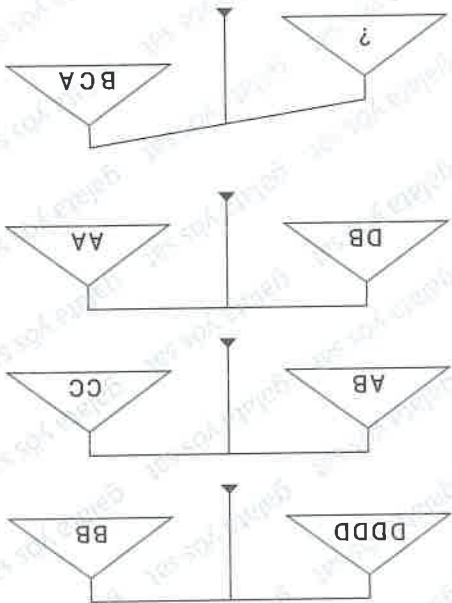
A+B+D+E = ?

- A) 28 B) 32 C) 54 D) 63 E) 8

23.

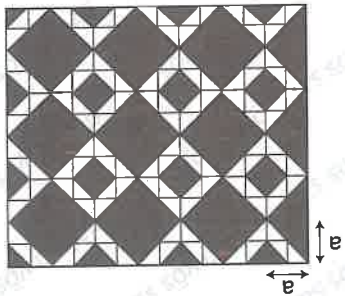


22.



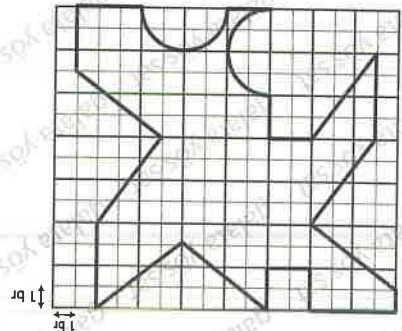
- A) AADD B) DDDD C) AA
D) BBBD E) BADD

Tarifi alan kaç a^2 dir ?
How many a^2 is the shaded area?



- A) $21a^2$ B) $23a^2$ C) $26a^2$
D) $\frac{105a^2}{4}$ E) $\frac{107a^2}{4}$

24.

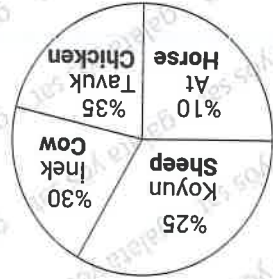


Şekildeki gibi kıvrılan telin uzunluğu kaç br dir ?
What is the length of the twisted wire as in the figure
($\pi = 3$ alınız) (Accept $\pi = 3$) ?

- A) 72 B) 78 C) 82 D) 84 E) 86

Özellik

Feature



Bir çiftlikte toplam 380 hayvan bulunmaktadır. Bu çiftlikteki hayvanların yüzdelik dilimleri grafikte verilmiştir. Buna göre 25, 26 ve 27. sorularını cevaplayınız.

There are 380 animals on a farm. The percentage of slices of animals on this farm are given in the graphic. Accordingly, answer questions 25, 26, and 27.

- A) 133 B) 144 C) 76 D) 83 E) 95

25. Çiftlikte kaç tane inek vardır ?
How many cows are there on the farm?

- A) 133 B) 114 C) 95 D) 38 E) 27

- A) 266 B) 380 C) 496 D) 584 E) 646

27. Tavuk ile koyunun ayak sayıları toplamı nedir ?
What is the sum of feet of chickens and sheep?



26. Çiftlikte en fazla bulunan hayvan en az bulunan hayvandan sayıca kaç fazladır ?
What is the difference between the number of animals which appear most and least ?

- A) 38 B) 52 C) 76 D) 83 E) 95

Aşağıdaki tabloda Aynur'un bir YÖS sınavında yaptığı doğru yanlış sayıları yer almaktadır.

The following chart shows the number of and correct answers to the student Aynur's questions of YÖS.

YÖS sınavıyla ilgili şunlar bilinmektedir.

The following are details given for the YÖS.

- Her bir derste yer alan soru sayısı eşittir.
- Number of questions is equal for each subject.
- Aynur IQ dersinden tüm soruları cevaplamıştır.
- Aynur's answered all questions in IQ.

- 4 yanlış 1 doğruyu götürmektedir.
- 4 incorrect answers cancel 1 correct answer.

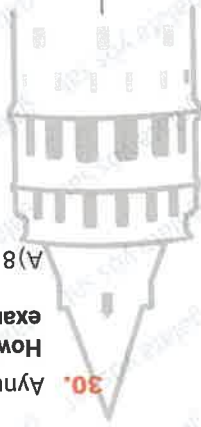
- Her soru 1 puandır.

Each question worth 1 point.

Dersler	Doğru	Yanlış	Subjects	Correct	Incorrect
Geometri	16	4	Matematik	22	1
Türkçe	18	6	IQ	22	3

28. Sınavda toplam kaç soru vardır ?
How many questions are there in the exam?

- A) 80 B) 90 C) 100 D) 110 E) 120



30.

Aynur bu YÖS sınavında kaç soruyu boş bırakmıştır ?
How many questions did Aynur leave blank in this YÖS exam?

- A) 8 B) 10 C) 12 D) 13 E) 14

29. Aynur bu YÖS sınavından kaç puan almıştır ?
What is Aynur's score?

- A) 70 B) 72,75 C) 74,5 D) 75,25 E) 76

1. $\frac{\cos 22 + \cos 33 + \cos 44}{\sin 22 + \sin 33 + \sin 44} = ?$

- A) $\tan 33$
 B) $\tan 22$
 C) $\cot 33$
 D) $\cot 22$
 E) $\sec 33$

4. $\frac{\sin 12}{\cos 78} + 1 = ?$

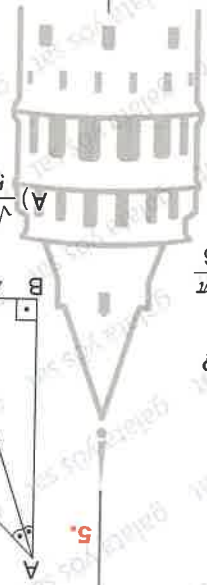
- A) 2
 B) 1
 C) $\frac{1}{2}$
 D) $\frac{3}{4}$
 E) $\frac{1}{4}$

2. $\sqrt{3} \cdot \sin x + \cos x = 0$

denklemin pozitif en küçük kökü kaçtır?

What is the smallest positive root of the equation?

- A) π
 B) 2π
 C) $\frac{\pi}{2}$
 D) $\frac{3\pi}{2}$
 E) $\frac{5\pi}{6}$

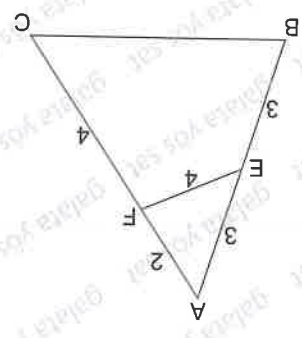


$m(\widehat{ABC}) = 90^\circ$
 $|BN| = 4$
 $|NC| = 8$
 $\sin(\widehat{ANC}) = ?$

- A) $\frac{\sqrt{2}}{5}$
 B) $\frac{1}{2}$
 C) $\frac{\sqrt{2}}{2}$
 D) $\frac{2}{\sqrt{3}}$
 E) $\frac{2}{\sqrt{5}}$

3. $\sin\left(\arctan \frac{4}{3} + 7\pi\right) = ?$

- A) $\frac{4}{5}$
 B) $\frac{3}{2}$
 C) $\frac{5}{4}$
 D) $-\frac{8}{5}$
 E) $-\frac{5}{3}$



$|AE| = 3$
 $|EB| = 3$
 $|AF| = 2$
 $|FC| = 4$
 $|EF| = 4$
 $|BC| = ?$

- A) $3\sqrt{10}$
 B) $4\sqrt{7}$
 C) $4\sqrt{5}$
 D) $4\sqrt{3}$
 E) 8

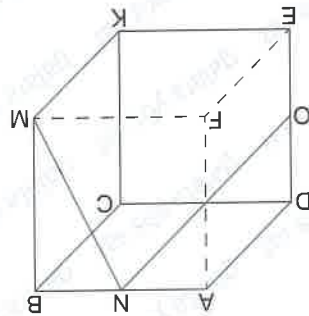
4.

5.

6.

7. $\tan 10 \cdot \tan 20 \dots \tan 70 \cdot \tan 80 = ?$

- A) 4 B) $2\sqrt{3}$ C) $\sqrt{3}$ D) $\sqrt{2}$ E) 1

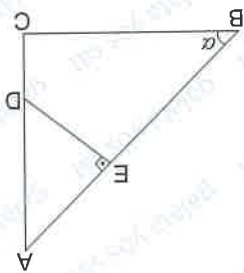


ABCD EFMK küp
 $|AN| = |BN|$
 $|DO| = |OE|$
 $\cos(\widehat{MNO}) = ?$

8.

- A) $\frac{1}{4}$ B) $\frac{\sqrt{5}}{1}$ C) $\frac{\sqrt{10}}{2}$ D) $\frac{2\sqrt{17}}{1}$ E) $\frac{\sqrt{30}}{1}$

12.



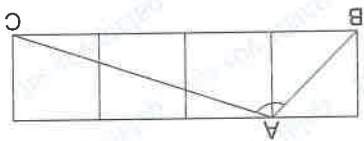
$\Delta E \perp AB$
 $AC \perp CB$
 $m(\widehat{ABC}) = \alpha$
 $|AE| = 1$
 $|AC| = 4$
 $|DE| = 2 \cos \alpha$
 $|BC| = ?$

- A) $2\sqrt{2}$ B) $2\sqrt{3}$ C) 4 D) $4\sqrt{3}$ E) 8

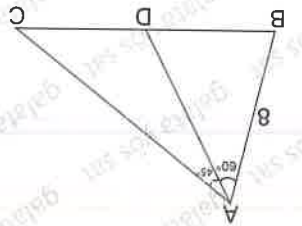
11. $\cos 23 = m \Rightarrow \sin 44 = ?$

- A) $m^2 + 1$ B) $2m^2 - 1$ C) $2m^2 + 1$
 D) $m^2 - 1$ E) $m^2 - 2$

Şekildeki kareler eşittir
 Squares in shape are equal.
 $\sin(\widehat{BAC}) = ?$



10.



13. $m(\widehat{BAD}) = 60^\circ$
 $m(\widehat{DAC}) = 45^\circ$
 $|BD| = 2|DC|$
 $|AB| = 8$
 $|AC| = ?$
 A) $2\sqrt{6}$ B) $2\sqrt{2}$ C) $2\sqrt{3}$ D) 2 E) $4\sqrt{3}$

14. $0 < x < 2\pi$
 $\frac{\sec x - 1}{\tan x - 1} = \frac{\sec x}{\tan x + 1}$

Eşitliğini sağlayan kaç farklı x değeri vardır ?
 How many different x values are there that provide the equation ?

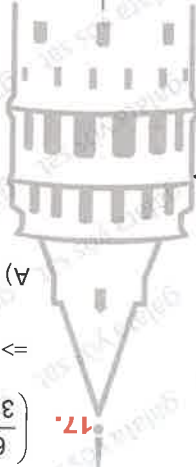
- A) 0 B) 1 C) 2 D) 3 E) 4

15. $f(x) = 2 \cdot \cos(-4x + 30)$
 $f(x) = f(x + T) \Leftrightarrow \min(T) = ?$

- A) 2π B) π C) $\frac{\pi}{2}$ D) $-\pi$ E) -2π

18. $A \subset U, B \subset U, (A \cap B) = \emptyset$
 $n(B) = x^2 + 10x + 6$
 $n(A) = -x^2 - 10x + 5$
 $n(U) = ?$

- A) $2x^2 + 20x + 1$ B) 0 C) $20x$ D) $2x^2$ E) 11



17. $\left(\frac{6y}{3y+1}\right)^x : (2y)^x = \frac{1}{81}$
 $\Rightarrow x = ?$

- A) 12 B) $\frac{3}{37}$ C) 4 D) $\frac{3}{62}$ E) 1

16. $\sqrt{4x^2 - 4x + 1} + \sqrt{4x^2 - 12x + 9} = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5
16. $\frac{1}{3} < x < \frac{2}{3}$ olmak üzere.

$$A = \frac{4 - 3\sqrt{x-11}}{2\sqrt{11-x+5(x+1)}}$$

19. $A \in \mathbb{R}$

- A) 11 B) 9 C) 12 D) 15 E) 18

$$\frac{(x+7)^{2000}(x-2)^2}{x^2-x+1} \geq 0 \Rightarrow S, S = ?$$

- A) $(-\infty, -7]$ B) $[-7, 2]$ C) $(2, \infty)$ D) \emptyset E) \mathbb{R}

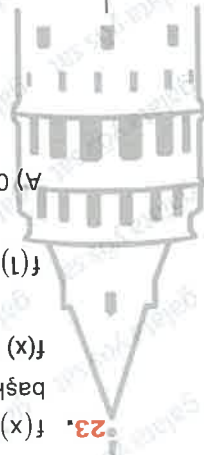
20. $x = 1,9$

$$y = 2,9$$

- A) $\frac{3}{65}$ B) $\frac{3}{45}$ C) $\frac{3}{25}$ D) $\frac{3}{35}$ E) $\frac{3}{55}$

$$f(1) = f(3) = 0 \Rightarrow a + b + c = ?$$

- A) 0 B) 1 C) 16 D) 4 E) 12



24.

$$\frac{x-1}{x} \leq \frac{1}{x}$$

S, S = ?

- A) $[0, 1]$ B) $(0, 1]$ C) $(0, 1)$ D) $[0, 1)$ E) $(-\infty, 0)$

S, S = $\{x_1, x_2\}$

$$ax^2 + bx + c = 0 \Rightarrow x_1 = 1 - \sqrt{3}$$

$$\Rightarrow x_1 \cdot x_2 = ?$$

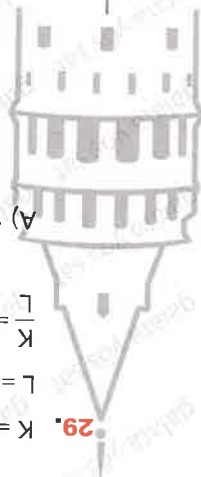
- A) -1 B) 0 C) 1 D) 2 E) $\sqrt{2}$

27. $x * y = x^3 - 3x^2y + 3xy^2 - y^3$
 $\frac{1}{2} * \frac{1}{3} = ?$

- A) $\frac{1}{6}$
- B) $\frac{1}{36}$
- C) $\frac{1}{216}$
- D) $\frac{1}{81}$
- E) $\frac{2}{29}$

30. $x = 1 \quad \pi = 3,1415...$
 $|\pi - 3| + |\pi - 4| = ?$

- A) 1
- B) $2\pi - 5$
- C) 2π
- D) -1
- E) $\pi - 5$



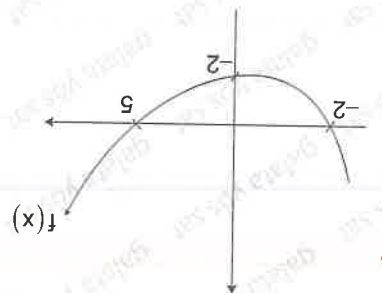
29. $K = 1.2 + 2.3 + 3.4 + \dots + 10.11$
 $L = 3.8 + 6.12 + 9.16 + \dots + 30.44$

- A) 12
- B) 1,2
- C) $\frac{12}{1}$
- D) $\frac{6}{1}$
- E) $\frac{3}{1}$

26. $2\sqrt[4]{x} - \sqrt{x} = -3$

- A) $\{1, 81\}$
- B) $\{1\}$
- C) $\{81\}$
- D) $(1, 81)$
- E) $[1, 81)$

25. $a = ?$
 $f(x) = \left(ax + \frac{10}{4}\right) \cdot (x - 5)$



28. $P(x-2) = 3x^2 + 4x + 10$
 $\Rightarrow P(x) = ?$

- A) $3x^2 + 4x + 10$
- B) $3x^2 + 12x + 18$
- C) $3x^2 - 8x + 30$
- D) $3x^2 - 16x + 30$
- E) $3x^2 + 16x + 30$

1.

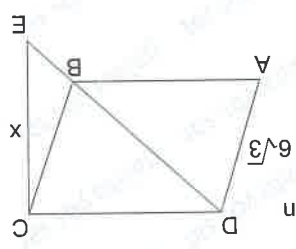
ABCD eşkenar dörtgen

$m(\widehat{BAD}) = 120^\circ$

$|BE| = 2 \text{ cm}$

$|AD| = 6\sqrt{3}$

$|CE| = x = ?$



- A) $4\sqrt{3}$ B) $\sqrt{3}$ C) 6 D) $\sqrt{37}$ E) $2\sqrt{37}$

2.

ABCD eşkenar dörtgen

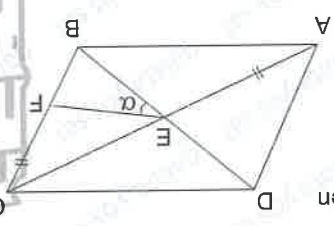
ABCD rhombus

$|AE| = |CF|$

$m(\widehat{DCA}) = 70^\circ$

$\Rightarrow \alpha = ?$

- A) 30 B) 35 C) 40 D) 50 E) 77



4.

ABCD eşkenar dörtgen

ABCD rhombus

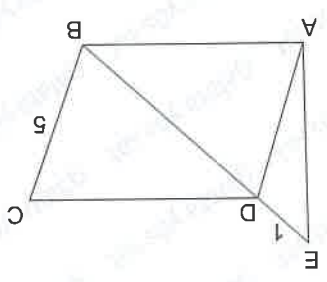
$|ED| = 1 \text{ cm}$

$|BC| = 5 \text{ cm}$

$|AE| = 4\sqrt{2} \text{ cm}$

$|BD| = ?$

- A) 4 B) 5 C) 6 D) 7 E) 8



3.

ABCD eşkenar dörtgen

ABCD rhombus

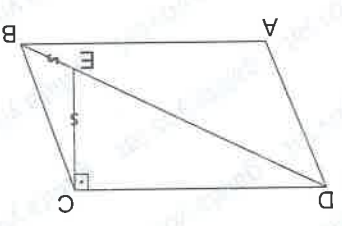
$|CE| \perp |CD|$

$|CE| = |EB|$

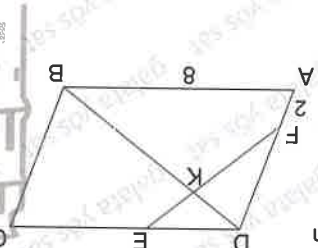
$|AB| = 8\sqrt{3}$

$|BD| = ?$

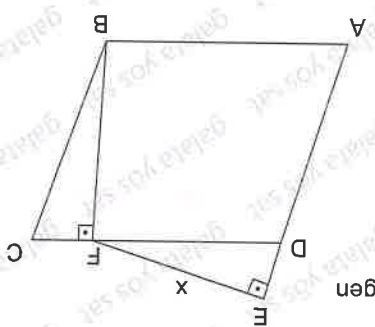
- A) 8 B) 10 C) 16 D) 20 E) 24



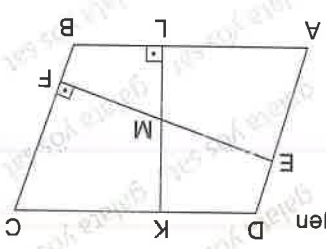
6. ABCD eskenar dörtgen
 $2|EK| = |FK|$
 $|FA| = 2 \text{ cm}$
 $|AB| = 8 \text{ cm}$
 $|EC| = ?$
- A) 3 B) 4 C) 5 D) 6 E) 7



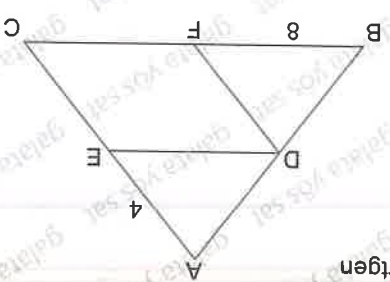
- ABCD eskenar dörtgen
 $AB \perp EF$
 $CD \perp BF$
 $|CF| = 12 \text{ cm}$
 $|AB| = 20 \text{ cm}$
 $|BF| = x = ?$
- A) $\frac{5}{32}$ B) 6 C) 7 D) 8 E) 9



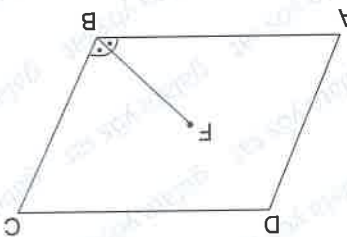
5. ABCD eskenar dörtgen
 $[EF] \perp [BC]$
 $[KL] \perp [AB]$
 $|EM| = 2x$
 $|MF| = 4 + x$
 $|ML| = 4 - 5x$
 $|KM| = 7 - x$
 $x = ?$
- A) $\frac{4}{7}$ B) $\frac{9}{7}$ C) $\frac{7}{5}$ D) $\frac{9}{8}$ E) 1



7. DECF eskenar dörtgen
 $|AE| = 4 \text{ cm}$
 $|BF| = 8 \text{ cm}$
 $\hat{C}(DECF) = ?$
- A) 15 B) $13\sqrt{2}$ C) $15\sqrt{2}$ D) $16\sqrt{2}$ E) $18\sqrt{2}$



9. ABCD eşkenar dörtgen



F: köşegenlerin kesim noktası

[BF] açıortay

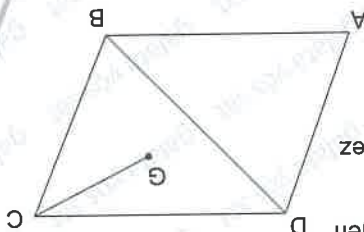
[BF] bisector

$|BF| = 8$ cm

$\hat{C}(ABCD) = 40$

A) 48 B) 50 C) 54 D) 80 E) 96

10. ABCD eşkenar dörtgen



G: $B\hat{C}D$ açırlık merkez

center of gravity

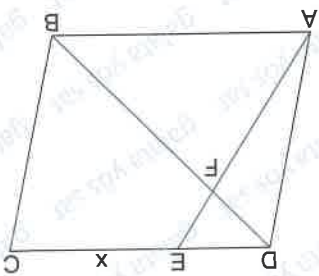
$|GC| = 10$

$|BD| = 16$

$\hat{C}(ABCD) = ?$

A) 60 B) 64 C) 66 D) 68 E) 72

12. ABCD paralelkenar



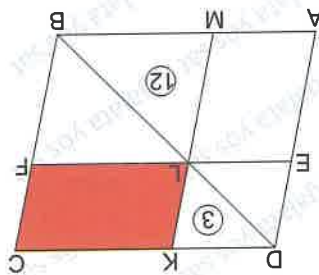
$3|DF| = |BF|$

$|AB| = 15$ cm

$|EC| = x = ?$

A) 10 B) 11 C) 12 D) 13 E) 14

11. ABCD paralelkenar



ABCD paralellogram

$[DE] // [KL]$

$[CD] // [AB]$

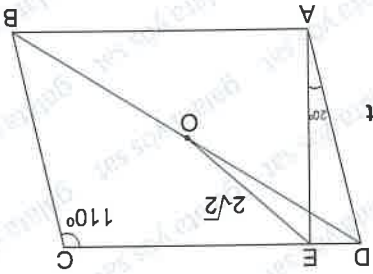
$A(\hat{DKL}) = 3$ cm²

$A(\hat{BLM}) = 12$ cm²

$A(\hat{CKLF}) = ?$

A) 6 B) 10 C) 12 D) 14 E) 20

14. ABCD paralelkenar



ABCD paralellogram

O: köşegenlerin kesim noktası

O: diagonals cut-point

$m(\hat{DAE}) = 20^\circ$

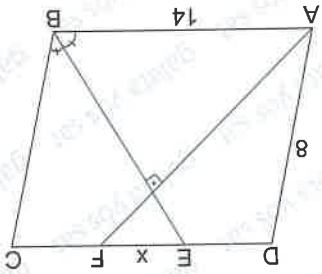
$m(\hat{DCB}) = 110^\circ$

$|OE| = 2\sqrt{2}$

$|AE|^2 + |EC|^2 = ?$

A) 30 B) 32 C) 34 D) 36 E) 40

13. ABCD paralelkenar



ABCD paralelkenar

[BE] açıortay

[BE] bisector

$[AF] \perp [BE]$

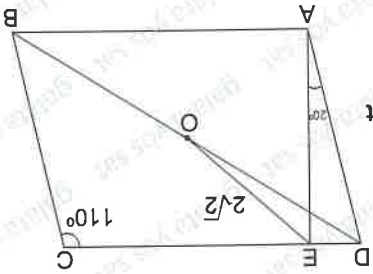
$|AD| = 8$ cm

$|AB| = 14$ cm

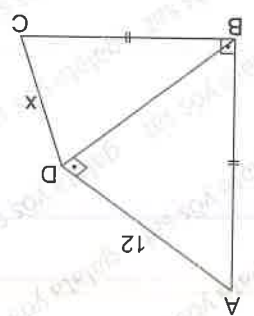
$x = ?$

A) 2 B) 3 C) 4 D) 5 E) 6

14. ABCD paralelkenar

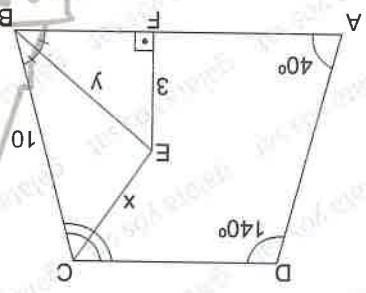


15. $[AD] \perp [BD]$
 $[AB] \perp [BC]$
 $|AB| = |BC| = 20$ cm
 $|AD| = 12$ cm
 $x = ?$



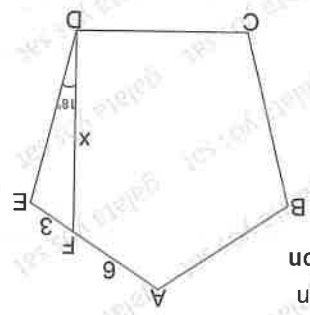
- A) $\sqrt{17}$ B) $2\sqrt{17}$ C) $3\sqrt{17}$ D) $4\sqrt{17}$ E) $5\sqrt{17}$

16. $[BE] \vee [CE]$ ağıortay
 $[BE]$ and $[CE]$ bisectors
 $[EF] \perp [AB]$
 $m(\widehat{BAD}) = 40^\circ$
 $m(\widehat{ADC}) = 140^\circ$
 $|EF| = 3$ cm
 $|BC| = 10$ cm
 $x + y = ?$



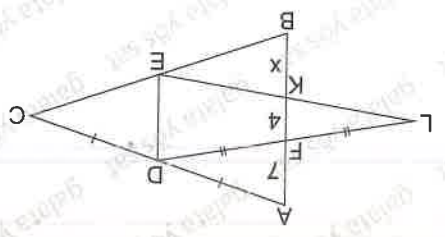
- A) $2\sqrt{10}$
 B) $3\sqrt{10}$
 C) $4\sqrt{10}$
 D) $5\sqrt{10}$
 E) $6\sqrt{10}$

17. ABCDE düzün beşgen
 $|AF| = 3$ cm
 $|AE| = 6$ cm
 $m(\widehat{EDF}) = 18^\circ$
 $x = ?$



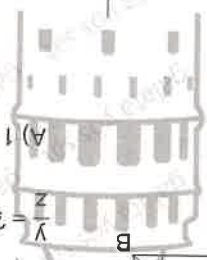
- A) 9 B) 11 C) 12 D) 13 E) 18

18. $[AB] \parallel [DE]$
 $|AD| = |DC|$
 $|FL| = |DF|$
 $|FK| = 4$ cm
 $|AF| = 7$ cm
 $|KB| = x = ?$



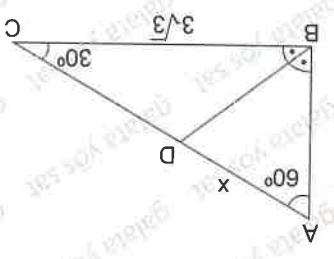
- A) 5 B) 6 C) 7 D) 8 E) 9

19. $m(\widehat{CAE}) = m(\widehat{ABC})$
 $|BD| = |DE|$
 $m(\widehat{ADE}) = 2x$
 $m(\widehat{AED}) = y$
 $m(\widehat{ACB}) = z$



- A) 1
 B) 2
 C) 3
 D) 4
 E) 5

20. ABC bir üçgen
 $[BD]$ ağıortay
 $[BD]$ bisektor
 $m(\widehat{ACB}) = 30^\circ$
 $|BC| = 3\sqrt{3}$
 $|AD| = x = ?$



- A) $3\sqrt{3}$
 B) $3\sqrt{3} - 3$
 C) $3\sqrt{3} + 3$
 D) $6\sqrt{3}$
 E) $6\sqrt{3} - 3$

Başarıya Götüren Yol

Mat	Problem 2 / Problem	Mat	Problem / Logit	Mat	Problem - Euler
Mat	Problem 1 / Problem	Mat	Problem / Logit	Mat	Problem - Euler
Mat	Problem 1 / Problem	Mat	Problem / Logit	Mat	Problem - Euler

Mat	Problem 1 / Problem	Mat	Problem / Logit	Mat	Problem - Euler
Mat	Problem 1 / Problem	Mat	Problem / Logit	Mat	Problem - Euler
Mat	Problem 1 / Problem	Mat	Problem / Logit	Mat	Problem - Euler

Mat	Problem 1 / Problem	Mat	Problem / Logit	Mat	Problem - Euler
Mat	Problem 1 / Problem	Mat	Problem / Logit	Mat	Problem - Euler
Mat	Problem 1 / Problem	Mat	Problem / Logit	Mat	Problem - Euler

Mat	Problem 1 / Problem	Mat	Problem / Logit	Mat	Problem - Euler
Mat	Problem 1 / Problem	Mat	Problem / Logit	Mat	Problem - Euler
Mat	Problem 1 / Problem	Mat	Problem / Logit	Mat	Problem - Euler

KTS-18

Mat	Karmaşık Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry	Mat	Trigonometri / Trigonometry
IQ	Selül Geometrisi / Plane Geometry	IQ	KLM	IQ	Çevre - Alan / Environment - Area
Geo	Yanuk / Trapezoid	Geo	Eşkenar Dörtgen / Rhombus	Geo	Paralelkenar II. / Parallel Edge II

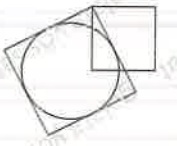
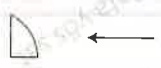
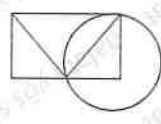
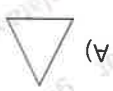
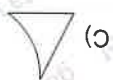
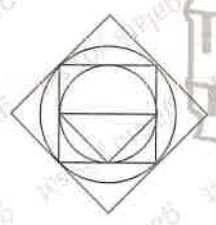
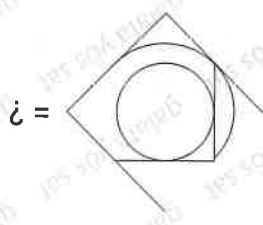
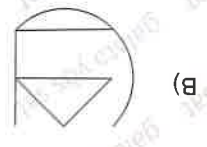
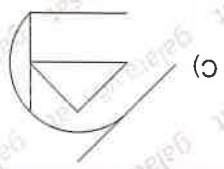
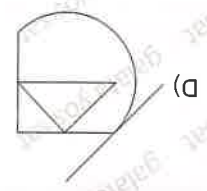
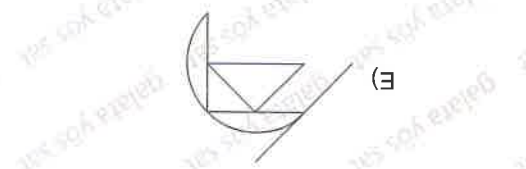
Mat	Modüler Aritmetik	Mat	Polinom / Polynomial	Mat	İl. Dereceden Denklem
IQ	Küp Sayma / Counting	IQ	Gradyanlar / Gradients	IQ	Gradyanlar / Gradients
Geo	Polygenler / Polygons	Geo	Dörtgen / Quadrilateral	Geo	Paralelkenar I. / Parallelogram I

Mat	İşlem / Operation	Mat	Karşılıklı Çarpım ve Fonksiyonlar	Mat	Küme / Sets
IQ	Denklemler Eşitlik / Equation Matching	IQ	Eşleştirme / Matching	IQ	Oranlar / Scales
Geo	Üçgenin Alanı / Area of Triangles	Geo	Üçgenin Alanı / Area of Triangles	Geo	Üçgenin Alanı / Area of Triangles

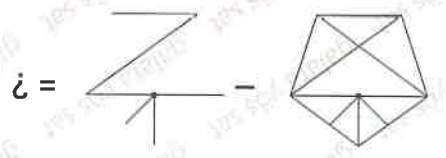
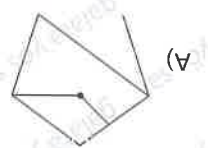
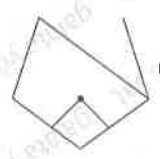
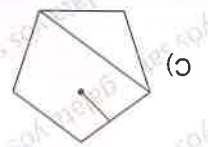
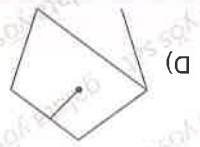
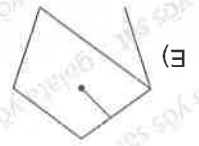
Mat	Dijital Sayılar / Natural numbers	Mat	Sayılar / Numbers	Mat	Oran ve Oranlar / Ratio and Proportion
IQ	Sayı Başlıklar / Number Relations	IQ	Tablolar / Tables	IQ	Tablolar / Tables
Geo	Konveks / Convex	Geo	Üçgenin Benzerlik / Similarity in Triangles	Geo	Üçgenin Benzerlik / Similarity in Triangles

Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Çarpma Ayrma / Factorization	Mat	Kök Sayılar / Radical Expressions
IQ	Sayı Başlıklar / Number Relations	IQ	İşlem / Operations	IQ	İşlem / Operations
Geo	Agonizm / Bisector	Geo	İsoçken ve Eşkenar Üçgen	Geo	Dak Üçgen / Right triangle

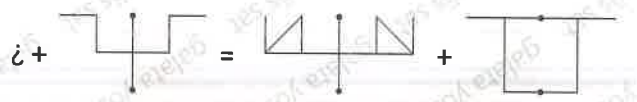
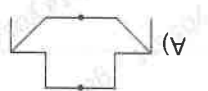
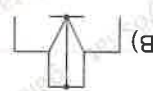
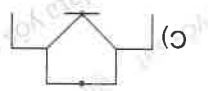
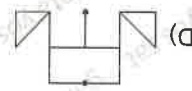
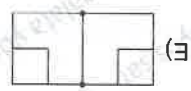
Mat	İşlem / Operation	Mat	İl. Dereceden Denklem	Mat	İl. Dereceden Denklem
IQ	Sayı Başlıklar / Number Relations	IQ	Sayı Başlıklar / Number Relations	IQ	Sayı Başlıklar / Number Relations
Geo	Agonizm / Bisector	Geo	Üçgenin Alanı / Area of Triangles	Geo	Üçgenin Alanı / Area of Triangles



3.



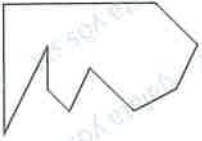
2.



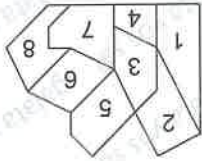
1.

Yukarıdaki Şekil II, Şekil I'den hangi parçaların atılmasıyla oluşmuştur ?
Figure II was formed by taking which piece from figure I ?

Şekil II.



Şekil I.

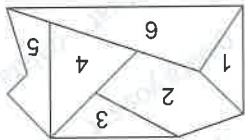


Yukarıdaki şekil II, şekil I'den hangi parçanın atılmasıyla oluşmuştur ?
Figure II was formed by taking which piece from figure I ?

Şekil II.



Şekil I.

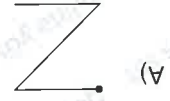
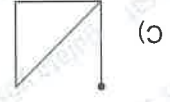
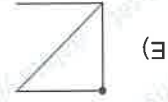
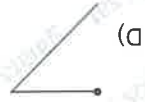
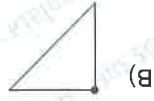


A) 2-5 B) 3-6 C) 2-6 D) 5-8 E) 1-2

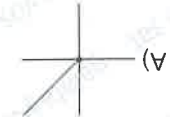
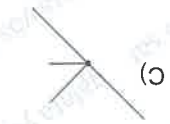
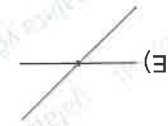
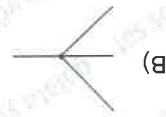
A) 1 B) 2 C) 3 D) 5 E) 6

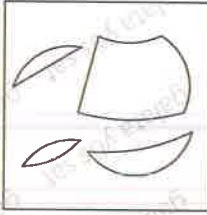
7.

$$6. \quad \begin{array}{c} \diagup \\ \diagdown \end{array} + \begin{array}{c} | \\ | \\ | \end{array} = \begin{array}{c} | \\ | \\ | \end{array} + \begin{array}{c} \diagup \\ \diagdown \end{array} + ?$$



$$5. \quad \begin{array}{c} \diagup \\ | \\ \diagdown \end{array} + \begin{array}{c} \diagup \\ \diagdown \end{array} = \begin{array}{c} \diagup \\ \diagdown \end{array} + ?$$





Yukarıdaki parçalar birleştirildiğinde aşağıdakilerden hangisi olur?
When you put the above parts together, which of the following happens?

- A)
- B)
- C)
- D)
- E)

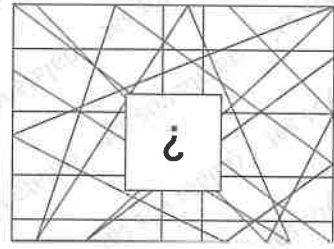
9.



Yukarıdaki şeklide taraflı olarak gösterilen şeklin yerine aşağıdakilerden hangisi gelmelidir?
Which of the following should replace the shaded figure in the figure above?

- A)
- B)
- C)
- D)
- E)

10.



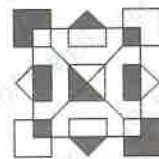
- A)
- B)
- C)
- D)
- E)

- A)
- B)
- C)
- D)
- E)

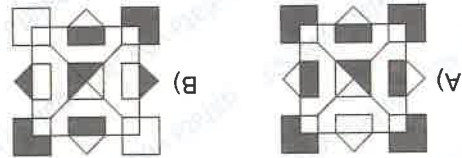
Yukarıdaki şeklin karşiti (negative) hangisidir?
Which is the opposite (negative) of the above figure?

11.

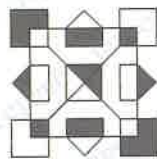
13.



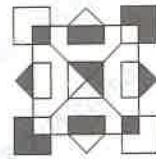
Yukarıdaki şeklin karşıtı (negatif) hangisidir ?
Which is the opposite (negative) of the above figure?



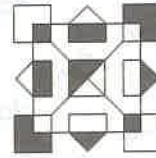
A)



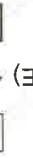
B)



C)

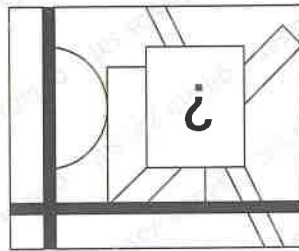


D)

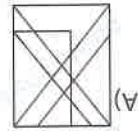


E)

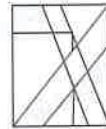
14.



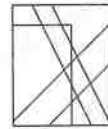
Yukarıdaki bir bütün içeresinden çıkarılan şekil aşağıdaki-
lerden hangisidir?
Which of the following is the figure extracted from the
whole above?



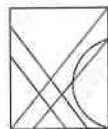
A)



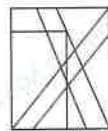
B)



C)

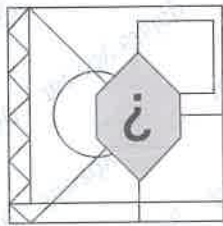


D)

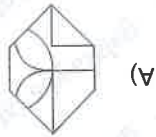


E)

15.



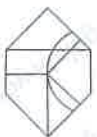
Yukarıdaki şeklin içinde bulunan taraflı altıgenin
yerine gelecek şekil aşağıdakilerden hangisidir ?
Which of the following is the figure that will replace
the shaded hexagon in the figure above?



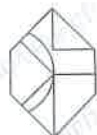
A)



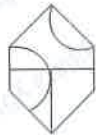
B)



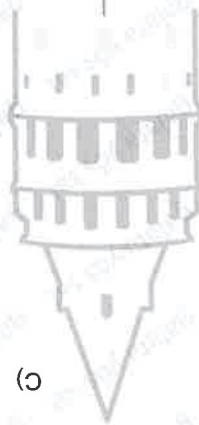
C)



D)



E)



16. 1 ☆ 2 = 6

3 ☆ 2 = 120

5 ☆ 1 = 720

2 ☆ 2 = ?

A) 12 B) 24 C) 36 D) 240 E) 700

17. 14 03 23 20

Yukarıdaki saat 1475 dakika sonra hangi zamanı gösterir.

What time does the clock above indicate after 1475 minutes?

A) 15 03 23 20

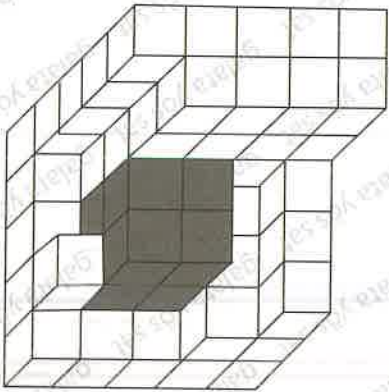
B) 16 03 00 05

C) 16 03 20 55

D) 15 03 23 55

E) 16 03 23 55

19.



Siyah küpü kapatacak için kaç tane beyaz küçük küpe ihtiyac vardır ?

How many white cubes are needed to cover the black cube?

A) 13 B) 15 C) 27 D) 38 E) 46

18. Çevresi 9m olan bir çember P noktasında R noktasına

8. turda varmış oluyor.

A circle with a circumference of 9m reaches point R from point P in the 8th round.



Buna göre aşağıda çevresi 3m olan bir çember aynı yolu

kaçinci turda tamamla mis olur ?

A circle of 3 meters in circumference, in which round will it complete the same road?

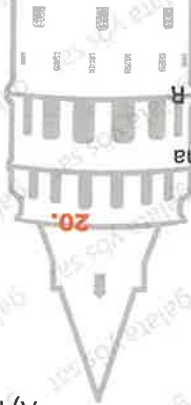


A) 20 B) 21 C) 22 D) 23 E) 24

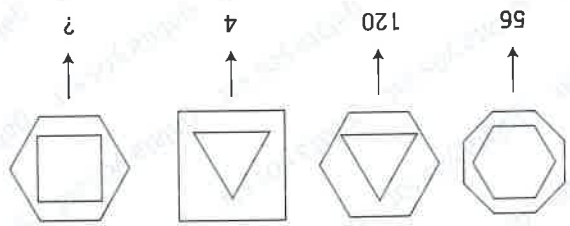
Volha bulunduğ yerdən 3 birim doğuya sonra 4 birim kuzeyə sonra da 5 birim doğuya gətməmişdir. Mehri, 4 birim doğuya sonra 2 birim güneyə gətməmişdir. Volha və Mehri başlanğıcda yanyana olduqlarına görə aralarındakı məsafə kaç birimdir ?

Volha moved 3 units east, 4 units north, 5 units straight from where it is located. Mehri went 4 units east and 2 units south. Since Volha and Mehri were initially side by side, what is the distance between them?

A) 4 B) $\sqrt{29}$ C) $\sqrt{40}$ D) 7 E) $\sqrt{52}$

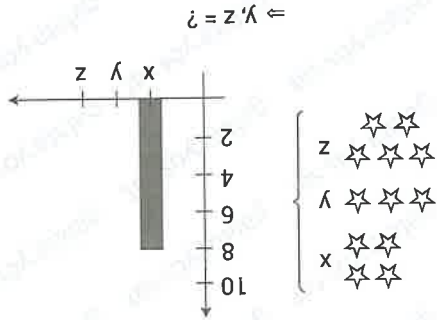


21.



- A) 81 B) 72 C) 56 D) 30 E) 24

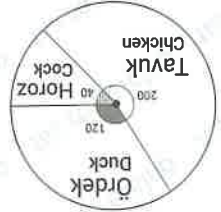
22.



$\Rightarrow y, z = ?$

- A) 8,6 B) 6,8 C) 6,10 D) 10,6 E) 10,8

23.



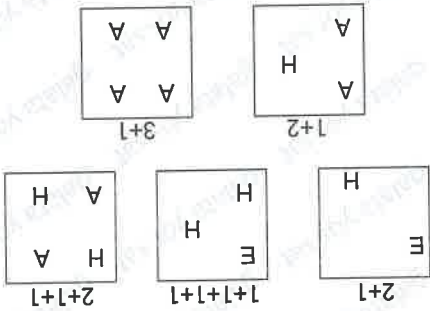
Yandaki dairesel grafik bir çiftlikte bulunan tavuk, horoz ve ördek sayılarının dağılımını göstermektedir. The pie chart shows the distribution of the numbers of chickens, cocks and ducks in a farm.

Bu çiftlikte $x+7$ tane horoz, $4x+4$ tane ördek olduğuna göre, bu çiftlikteki tavuk sayısı kaçtır ?

Since there are $x + 7$ cocks and $4x + 4$ ducks in this farm, what is the number of chickens in this farm?

- A) 120 B) 130 C) 140 D) 150 E) 160

24.



What is ?

- A) $1+1+1+1+1+1+2$

- B) $3+3+4+4+1$

- C) $7+6+5+4$

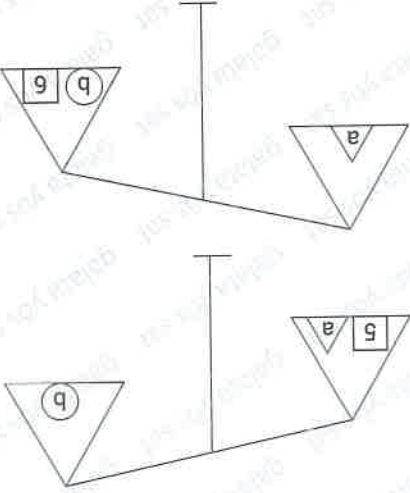
- D) $7+3$

- E) $7+5$

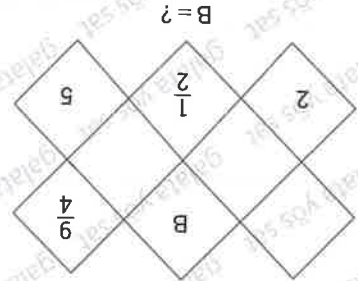
Yukarıdaki terazide b'nin kütlesi 18 olursa, a'nın kütlesi aşağıdakilerden hangisi olabilir ?

If the mass of b is 18 in the balance above, which one of the following can A be?

- A) 13 B) 12 C) 18 D) 24 E) 26

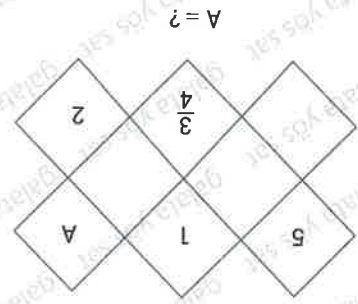


- A) 1 B) 2 C) 4 D) 5 E) 9



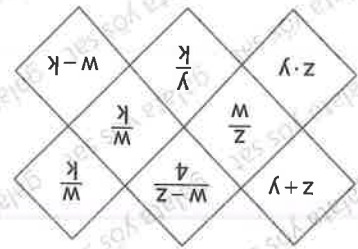
27.

- A) 3 B) $\frac{3}{1}$ C) $\frac{2}{1}$ D) $\frac{2}{3}$ E) 2



26.

26. ve 27. sorular yukarıdaki tabloya göre cevaplandırılacaktır.
Questions 26 and 27 will be answered according to the above table.



28.

$$K^3 + K^2 \sqrt{M+1} = 0 \Rightarrow K = ?$$

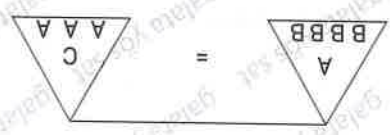
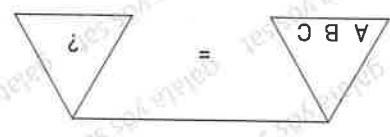
- A) $M+2$ B) $M-1$ C) $2M+1$ D) $M+3$ E) $M+1$

29.

- A) 12 B) 16 C) 20 D) 25 E) 36

4	6	4	3
7	7	6	4
?	25	14	1
5	8	2	5
7	9	8	6

- A) BBBC B) BAAC C) AABB D) CCBA E) CCC



1. $!^2 = -1 \Rightarrow \sqrt{-9 + \sqrt{-16} \cdot \sqrt{-1}} = ?$

- A) $4+3i$
 B) $-4+3i$
 C) -7
 D) $7i$
 E) $-7i$

2. $!^{32n+23} + !^{4n+3} = ?$

- A) $1+2i$
 B) $2i$
 C) $-2i$
 D) $-2i-1$
 E) $i-2$

3. $z = x+iy$ olmak üzere,
 $!z+3-! = 2z+3i \Rightarrow \text{Im}(z) = ?$

- A) -3
 B) $-\frac{3}{5}$
 C) -1
 D) 1
 E) $\frac{3}{5}$

- A) $z = 16 \cdot (\cos 60^\circ + i \sin 60^\circ)$
 B) $z = 16 \cdot (\cos 30^\circ + i \sin 30^\circ)$
 C) $z = 6 \cdot (\cos 60^\circ + i \sin 60^\circ)$
 D) $z = 6 \cdot (\cos 30^\circ + i \sin 30^\circ)$
 E) $z = 4 \cdot (\cos 30^\circ + i \sin 30^\circ)$

What is the representation of the complex number Z in polar form?

4. $z = 3\sqrt{3} + 3i$ karmaşık sayısının kutupsal biçiminde gösterimi aşağıdakilerden hangisidir ?

- A) $\sqrt{13}$
 B) $\frac{2}{13\sqrt{2}}$
 C) 13
 D) $13\sqrt{2}$
 E) 26

4. $Z_1 = 2-3i$, $Z_2 = 1+i$, $Z_3 = 1+2i$,
 $\Rightarrow \left| \frac{-5Z_1 \cdot Z_2}{Z_3} \right| = ?$

6. $z_1 = 2cis40^\circ$, $z_2 = 3cis20^\circ$
 $z_1 \cdot z_2 = ?$

- A) $6+6i$
 B) $6\sqrt{3}+6i$
 C) $3+3\sqrt{3}i$
 D) $3\sqrt{3}+3i$
 E) $3i$

7. $z_1 = \sqrt{3} + i$, $z_2 = -2 + 2\sqrt{3}i$ ⇒ $\frac{z_2}{z_1} = ?$

- A) $-2i$ B) $2i$ C) -2 D) 2 E) $1 + 2i$

10. $\frac{x^2 - 8xi + 12}{x^2 + 4}$

İradesinin en sade hali nedir ?
What is the simplest form of the expression?

- A) $\frac{x-6i}{x+2i}$ B) $\frac{x-2i}{x+4i}$ C) $\frac{x+2i}{x+6i}$
D) $\frac{x+6i}{x+2i}$ E) $x+2i$

8. $z^3 = 1 + \sqrt{3}i$ karmaşık sayısının köklerinden biri hangisidir ?

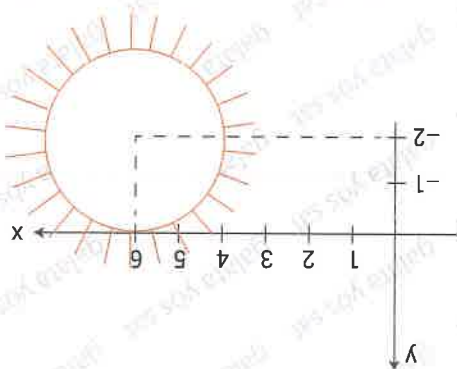
Which is one of the roots of the complex number $z^3 = 1 + \sqrt{3}i$?

- A) $\sqrt[3]{2} \text{ cis } 10^\circ$ B) $\sqrt[3]{2} \text{ cis } 80^\circ$ C) $\sqrt[3]{2} \text{ cis } 140^\circ$
D) $\sqrt[3]{4} \text{ cis } 20^\circ$ E) $\sqrt[3]{4} \text{ cis } 100^\circ$

- A) 3 B) 4 C) 5 D) 6 E) 7

11. $|z| \leq 2$, $|z + 4 - 3i|$
nin en büyük değeri kaçtır ?
What is the highest value?

12.



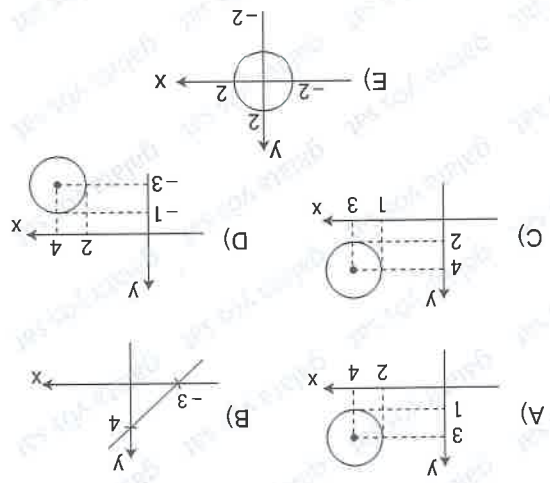
- A) $|z + 6 - 2i| \leq 2z$ B) $|z + 6 - 2i| \geq 2z$
C) $|z + 6 - 2i| = 2z$ D) $|z - 6 + 2i| \geq 2z$
E) $|z - 6 + 2i| \leq 2z$

9. $z = -1 + i \cdot \tan 40^\circ \Rightarrow \text{Arg}(z) = ?$

- A) 220° B) 140° C) 90° D) 60° E) 30°

13. $|z - 4 + 3i| = 2$

İfadelerin geometrik yeri hangisidir ?
Which is the geometric locus of the expression?

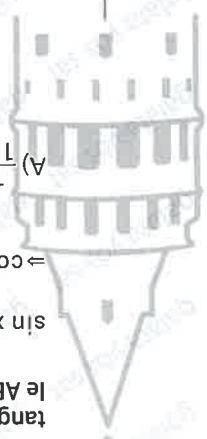


14. $0 < x < \frac{\pi}{2}$ ve $\frac{\sin x + \cos x \cdot \cot x}{1} = \frac{3}{1}$
 $\Rightarrow \tan x = ?$

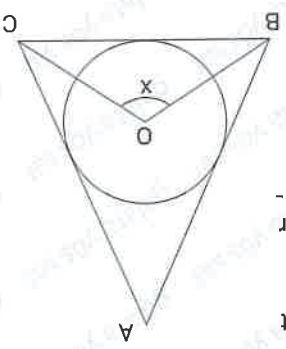
- A) $\frac{4}{\sqrt{2}}$
- B) $2\sqrt{2}$
- C) $\frac{2}{\sqrt{3}}$
- D) $\frac{3}{4}$
- E) 3

15. $3 \cos(\pi - \alpha) - 4 \cos\left(\frac{3\pi}{2} - \alpha\right) = 0$
 $\Rightarrow \tan\left(\frac{\pi}{2} + \alpha\right) = ?$

- A) $-\frac{3}{4}$
- B) $-\frac{4}{3}$
- C) 0
- D) $\frac{4}{3}$
- E) $\frac{3}{4}$



17. ABC üçgeninin iç teğet çemberinin merkezi O noktasidir.
The center of the inner tangent circle of triangle ABC is the point O.

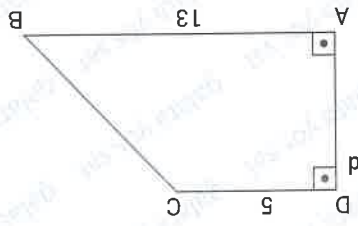


- A) $\frac{1}{15}$
- B) $\frac{1}{2}$
- C) $\frac{9}{1}$
- D) $-\frac{6}{1}$
- E) $-\frac{9}{1}$

18. $a^2 + b^2 + ab = 9$
 $b^2 + c^2 + bc = 16$
 $c^2 + a^2 + ac = 25$
 $ab + ac + bc = ?$

- A) $\frac{3}{8\sqrt{3}}$
- B) $4\sqrt{3}$
- C) $8\sqrt{3}$
- D) $\frac{3}{32\sqrt{3}}$
- E) $16\sqrt{3}$

16. ABCD dik yamuk
ABCD right trapezoid



$\cos(\widehat{ABC}) = ?$
 $A(ABCD) = 54$
 $|DC| = 5$
 $|AB| = 13$

- A) $\frac{4}{3}$
- B) $\frac{5}{4}$
- C) $\frac{5}{3}$
- D) $\frac{5}{1}$
- E) $\frac{5}{2}$

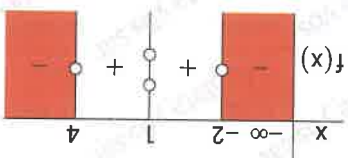
19. $\arctan 3x = \arccot x \Rightarrow x = ?$

- A) $\sqrt{3}$ B) 1 C) $\frac{1}{\sqrt{3}}$ D) $\frac{2\sqrt{3}}{1}$ E) 0

23.
$$\begin{cases} x = 2\sqrt{2} - 3 \\ y = 7 - 5\sqrt{2} \end{cases} \quad \frac{y}{x} = ?$$

- A) $\sqrt{2} - 1$ B) $\sqrt{2} + 1$ C) $\sqrt{14} - 2$ D) $\sqrt{2} + \sqrt{3}$ E) $\sqrt{3} - \sqrt{2}$

24.



- A) $\frac{(x-1)^2 \cdot (x+2)}{(x+1)^2 \cdot (4-x)} < 0$ B) $\frac{(x-2)}{(x+1)^2 \cdot (4-x)} < 0$
 C) $\frac{2-x}{(x-1)^2 \cdot (4-x)} < 0$ D) $\frac{(x+2)}{(x-1)^2 \cdot (4-x)} < 0$
 E) $\frac{(x-1)^2}{(2-x)^6 \cdot (4-x)} > 0$

25.
$$\begin{aligned} 12^a &= 2 \\ 6^b &= 3 \\ 12^{(1-a) \cdot 2b} &= ? \end{aligned}$$

- A) 9 B) 4 C) 12 D) 18 E) 36

21. $x^2 + x + 7 = 3 - x \Rightarrow (x-2)^2 - \frac{(x+2)^2}{48} = ?$

- A) 2 B) 4 C) 6 D) 8 E) 12

22. $g(x) = -x^2 + ax + 2a$ ve

$f(x) = -x^2 + 5ax - 6a$

parabolünün grafikleri

verilmiştir.

The graphics of the

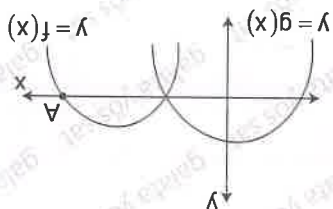
parabolas are given.

Buna göre A noktasının

apsisi kaçtır ?

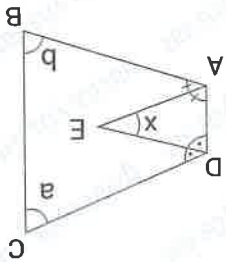
What is the abscissa of point A?

- A) 3 B) 4 C) 5 D) 6 E) 7



26.
$$\begin{aligned} 2x = 3y = 4z, \quad \frac{x}{2} + \frac{y}{4} + \frac{z}{8} &= 24 \\ \Rightarrow x + 3y + 2z &= ? \end{aligned}$$

- A) 1 B) 2 C) 3 D) 4 E) 5



1. ABCD yamuk
ABCD trapezoid

$$m(\widehat{BAE}) = m(\widehat{EAD})$$

$$m(\widehat{ADE}) = m(\widehat{EDC})$$

$$m(\widehat{DEA}) = x$$

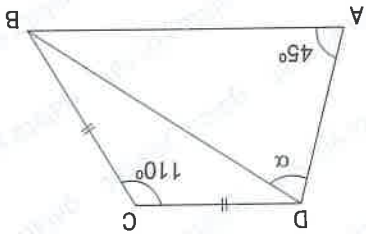
$$m(\widehat{DCB}) = a$$

$$m(\widehat{ABC}) = b$$

$$a + b = 130^\circ$$

$$x = ?$$

- A) 65 B) 80 C) 85 D) 100 E) 130



2. ABCD bir yamuk
ABCD trapezoid

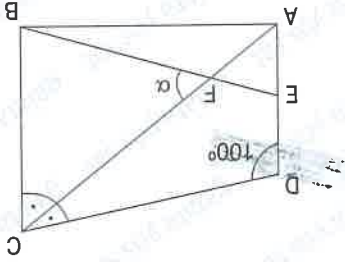
$$|DC| = |BC|$$

$$m(\widehat{BCD}) = 110^\circ$$

$$m(\widehat{BAD}) = 45^\circ$$

$$m(\widehat{BDA}) = \alpha = ?$$

- A) 80 B) 85 C) 90 D) 95 E) 100



3. ABCD bir yamuk
ABCD trapezoid

$$m(\widehat{DCA}) = m(\widehat{ACB})$$

$$m(\widehat{ADC}) = 100^\circ$$

$$|BF| = |FC|$$

$$m(\widehat{BFC}) = \alpha = ?$$

- A) 100 B) 110 C) 115 D) 120 E) 125

27. $f(x) = \frac{2x-3}{ax-b}$, $f^{-1}(x) = \frac{5x+c}{3x-2}$ $= a+b+c = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

28. $P(x)$ polinomunun $x^2 - 2x$ ile bölümünden elde edilen bölüm $M(x)$, kalan $7x-9$ dur. Buna göre, $P(x)$ polinomunun $x-2$ ile bölümünden elde edilen bölüm hangisidir?

The quotient obtained by dividing the polynomial $P(x)$ by $x-2x$ is $M(x)$, the remainder is $7x-9$. So, Which is the quotient obtained by dividing the polynomial $P(x)$ by $x-2$?

- A) $M(x) + 7$ B) $x \cdot M(x)$ C) $x \cdot M(x) - 5$

- D) $x \cdot M(x) + 7$ E) $M(x) - x$

29. Bir kutudaki kalemlerin sayısının en az 87 ve en çok 130 olduğu bilinmektedir. Kutudaki kalemler 3'er, 6'şar ve 7'şer sayıldığında her seferinde iki kalem artmaktadır.

Buna göre kutuda kaç kalem vardır?

It is known that the number of items in a box is at least 87 and at most 130. When the items in the box are counted three, six, and seven, two items increase each time.

How many pens are in the box?

- A) 108 B) 114 C) 117 D) 120 E) 128

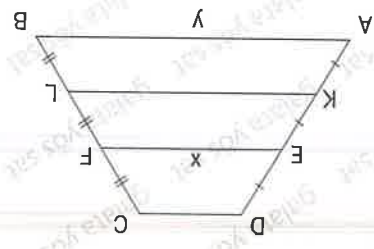
30. $s(A-B) + s(B-C) + s(C-A) = 36$

$$s(A \cap B \cap C) = 6$$

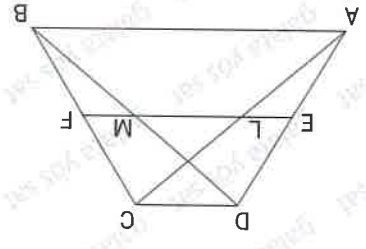
$$s(A \cup B \cup C) = ?$$

- A) 26 B) 30 C) 38 D) 42 E) 44

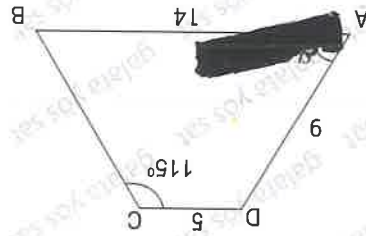
4. ABCD bir yamuk
 $|AK| = |KE| = |ED|$
 $|BL| = |LF| = |FC|$
 $|CD| = 5$
 $|KL| = 9$
 $|EF| = x$
 $|AB| = y$
 $y - x = ?$



5. ABCD bir yamuk
 $|EF|$ orta taban
 $|EF|$ midsegment
 $|DC| = 2 |LM|$
 $|AB| = 10$
 $|CD| = ?$



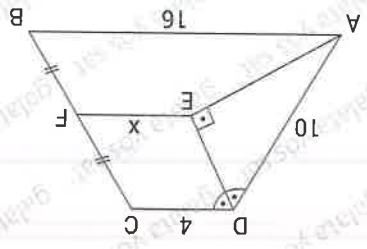
6. ABCD bir yamuk
 $m(\widehat{BCD}) = 115^\circ$
 $|CD| = 5$
 $|AD| = 9$
 $|AB| = 14$
 $m(\widehat{BAD}) = \alpha = ?$



A) 50 B) 80 C) 100 D) 115 E) 120

7.

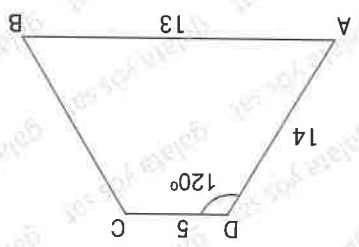
ABCD bir yamuk
 $|CF| = |FB|$
 $|CD| = 4$
 $|AD| = 10$
 $|AB| = 16$
 $[DE] \perp [AE]$
 $|EF| = x = ?$



A) 5 B) 6 C) 8 D) 9 E) 10

8.

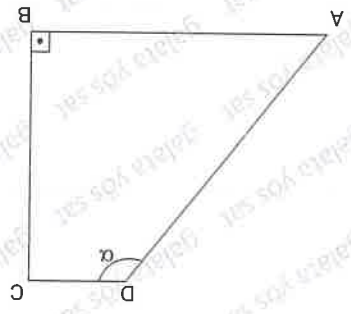
ABCD bir yamuk
 $m(\widehat{CDA}) = 120^\circ$
 $|CD| = 5$
 $|AD| = 14$
 $|AB| = 13$
 $A(ABCD) = ?$



A) $50\sqrt{3}$ B) $55\sqrt{3}$ C) $60\sqrt{3}$ D) $63\sqrt{3}$ E) $70\sqrt{3}$

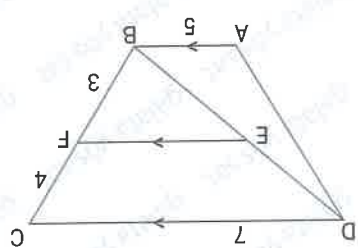
9.

ABCD bir yamuk
 $[AB] \perp [BC]$
 $2|AD| = \sqrt{8}|BC|$
 $m(\widehat{ADC}) = \alpha = ?$

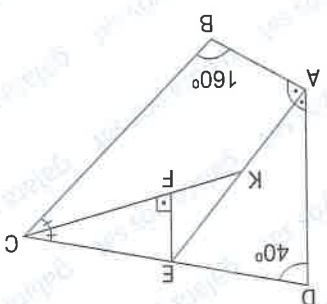


A) 90 B) 95 C) 135 D) 140 E) 150

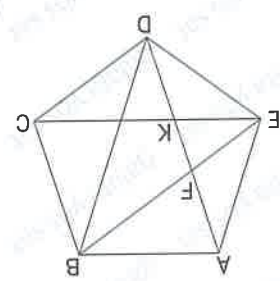
10. $[AB] \parallel [EF] \parallel [CD]$
 $|BF| = 3$
 $|CF| = 4$
 $|AB| = 5$
 $|CD| = 7$
 $\frac{A(BEF)}{A(ABD)} = ?$
 A) $\frac{7}{3}$ B) $\frac{5}{3}$ C) $\frac{25}{9}$ D) $\frac{35}{9}$ E) $\frac{16}{9}$



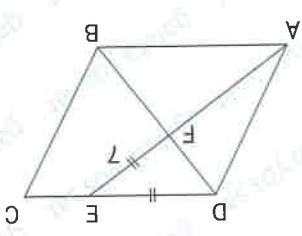
13. $m(\widehat{BAE}) = m(\widehat{EAD})$
 $m(\widehat{DCK}) = m(\widehat{KCB})$
 $m(\widehat{ADC}) = 40^\circ$
 $m(\widehat{ABC}) = 160^\circ$
 $[EF] \perp [KC]$
 $|EF| = 4\sqrt{3}$
 $|KE| = ?$
 A) 4 B) 5 C) 6 D) 7 E) 8



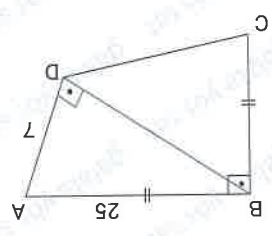
11. ABCDE düzgün beşgen
 ABCDE regular pentagon
 $\hat{C}(EFK) = 10$ cm
 olduğuna göre
 $|BD| = ?$
 A) 5 B) 6 C) 10 D) 12 E) 20



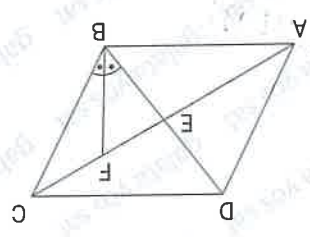
14. ABCD bir paralelkenar
 ABCD parallelogram
 $|DE| = |EF| = 7$
 $|AF| - |EC| = ?$
 A) 7 B) 8 C) 9 D) 10 E) 14



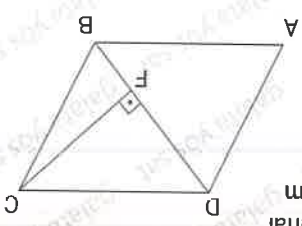
12. $[AB] \perp [BC]$
 $[AD] \perp [BD]$
 $|AD| = 7$
 $|AB| = |BC| = 25$
 $A(ABCD) = ?$
 A) 272 B) 290 C) 370 D) 372 E) 400



15. ABCD bir paralelkenar
 ABCD parallelogram
 $m(\widehat{DBF}) = m(\widehat{FBC})$
 $3|EF| = 4|FC|$
 $\frac{|AF|}{|FC|} = ?$
 A) $\frac{7}{3}$ B) $\frac{8}{3}$ C) $\frac{11}{3}$ D) $\frac{11}{4}$ E) $\frac{11}{7}$

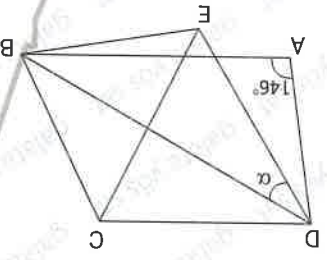


16. ABCD bir paralelkenar
 $[CF] \perp [BD]$
 $|BD| = 12$
 $|CF| = 8$
 $A(\triangle ABD) = ?$



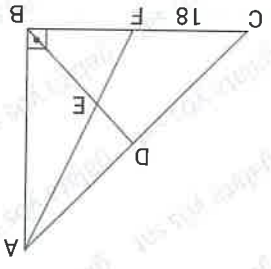
- A) 48 B) 56 C) 60 D) 72 E) 96

17. ABCD, bir eşkenar dörtgen
 ABCD, rhombus
 BEC, bir eşkenar üçgen
 BEC, equilateral triangle
 $m(\widehat{BAD}) = 146^\circ$
 $m(\widehat{EDB}) = \alpha = ?$



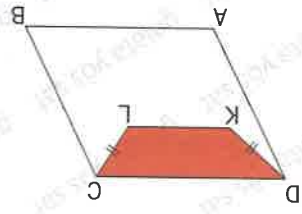
- A) 17 B) 20 C) 24 D) 28 E) 30

20. ABC bir üçgen
 ABC triangle
 $[AB] \perp [CB]$
 $|CF| = |FB|$
 $|AE| = 2|EF|$
 $|CF| = 18$
 $|AE| = 20$
 $|EB| = ?$



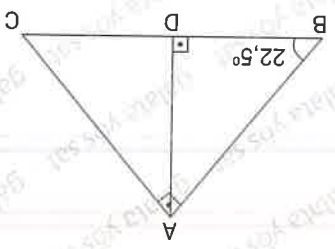
- A) $\sqrt{13}$
 B) $2\sqrt{13}$
 C) $3\sqrt{13}$
 D) $4\sqrt{13}$
 E) $5\sqrt{13}$

18. ABCD, eşkenar dörtgen
 ABCD, rhombus
 DCLK yamuk
 DCLK trapezoid
 $|DK| = |CL| = 5$
 $|AB| = 14$
 $|KL| = 8$
 $A(KLCD) = ?$



- A) 40 B) 42 C) 44 D) 46 E) 48

19. ABC bir üçgen
 ABC triangle
 $[BA] \perp [AC]$
 $[AD] \perp [BC]$
 $|BC| = 8\sqrt{2}$
 $m(\widehat{ABC}) = 22,5^\circ$
 $|AD| = ?$



- A) 4 B) $4\sqrt{2}$ C) $5\sqrt{2}$ D) 8 E) $8\sqrt{2}$

Başarıya Götüren Yol

Mat	Problem Solving / Problem	Mat	Problem Solving / Problem	Mat	Problem Solving / Problem
Mat	Problem Solving / Problem	Mat	Problem Solving / Problem	Mat	Problem Solving / Problem
Mat	Problem Solving / Problem	Mat	Problem Solving / Problem	Mat	Problem Solving / Problem

Mat	Problem Solving / Problem	Mat	Problem Solving / Problem	Mat	Problem Solving / Problem
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Mat	Problem Solving / Problem	Mat	Problem Solving / Problem	Mat	Problem Solving / Problem
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Mat	Problem Solving / Problem	Mat	Problem Solving / Problem	Mat	Problem Solving / Problem

KTS-19

Mat	Logaritma / Logarithm	Mat	Logaritma / Logarithm	Mat	Logaritma / Logarithm
Mat	Logaritma / Logarithm	Mat	Logaritma / Logarithm	Mat	Logaritma / Logarithm
Mat	Logaritma / Logarithm	Mat	Logaritma / Logarithm	Mat	Logaritma / Logarithm

Mat	Karmaşık Sayılar / Complex numbers	Mat	Karmaşık Sayılar / Complex numbers	Mat	Karmaşık Sayılar / Complex numbers
Mat	Karmaşık Sayılar / Complex numbers	Mat	Karmaşık Sayılar / Complex numbers	Mat	Karmaşık Sayılar / Complex numbers
Mat	Karmaşık Sayılar / Complex numbers	Mat	Karmaşık Sayılar / Complex numbers	Mat	Karmaşık Sayılar / Complex numbers

Mat	Modüler Aritmetik	Mat	Modüler Aritmetik	Mat	Modüler Aritmetik
Mat	Modüler Aritmetik	Mat	Modüler Aritmetik	Mat	Modüler Aritmetik
Mat	Modüler Aritmetik	Mat	Modüler Aritmetik	Mat	Modüler Aritmetik

Mat	İçim / Operation	Mat	İçim / Operation	Mat	İçim / Operation
Mat	İçim / Operation	Mat	İçim / Operation	Mat	İçim / Operation
Mat	İçim / Operation	Mat	İçim / Operation	Mat	İçim / Operation

Mat	Doğal Sayılar / Natural numbers	Mat	Doğal Sayılar / Natural numbers	Mat	Doğal Sayılar / Natural numbers
Mat	Doğal Sayılar / Natural numbers	Mat	Doğal Sayılar / Natural numbers	Mat	Doğal Sayılar / Natural numbers
Mat	Doğal Sayılar / Natural numbers	Mat	Doğal Sayılar / Natural numbers	Mat	Doğal Sayılar / Natural numbers

Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Basit Eşitsizlik ve Mutlak Değer
Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Basit Eşitsizlik ve Mutlak Değer
Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Basit Eşitsizlik ve Mutlak Değer

Mat	İçim Ücreti ve Rasyonel Sayılar	Mat	İçim Ücreti ve Rasyonel Sayılar	Mat	İçim Ücreti ve Rasyonel Sayılar
Mat	İçim Ücreti ve Rasyonel Sayılar	Mat	İçim Ücreti ve Rasyonel Sayılar	Mat	İçim Ücreti ve Rasyonel Sayılar
Mat	İçim Ücreti ve Rasyonel Sayılar	Mat	İçim Ücreti ve Rasyonel Sayılar	Mat	İçim Ücreti ve Rasyonel Sayılar

10

1.

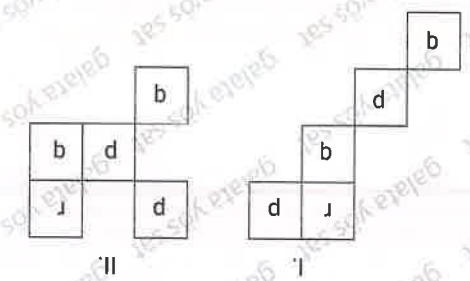
A)  B) 

C)  D) 

E) 

?	☆ ○	○ □	# ☆	○ i
☆	○	○	○	○
☆	○	○	○	○
☆	○	○	○	○
☆	○	○	○	○

2.



d	j	k	a	t	b	h
j	e	b	e	h	d	h
c	a	a	e	k	c	b
b	e	h	d	a	b	b
d	k	d	b	f	h	j
h	f	e	d	c	b	a

- a, b, c, d = ?
- A) $\frac{a}{b} \frac{c}{d}$ $\frac{?}{i}$ $\frac{?}{i}$ # $\frac{?}{i}$ $\frac{?}{i}$
- B) $\frac{a}{b} \frac{c}{d}$ $\frac{?}{i}$ $\frac{?}{i}$ # $\frac{?}{i}$ $\frac{?}{i}$
- C) $\frac{a}{b} \frac{c}{d}$ $\frac{?}{i}$ $\frac{?}{i}$ # $\frac{?}{i}$ $\frac{?}{i}$
- D) $\frac{a}{b} \frac{c}{d}$ $\frac{?}{i}$ $\frac{?}{i}$ # $\frac{?}{i}$ $\frac{?}{i}$
- E) $\frac{a}{b} \frac{c}{d}$ $\frac{?}{i}$ $\frac{?}{i}$ # $\frac{?}{i}$ $\frac{?}{i}$

3.

- A) a B) h C) k D) b E) j

5.

\ominus	\oplus	∇	\bullet	i
∇	\oplus	∇	\oplus	\oplus
∇	\oplus	∇	\oplus	\oplus
∇	\oplus	∇	\oplus	\oplus
∇	\oplus	∇	\oplus	\oplus

∇	\oplus	∇	\oplus	\oplus
∇	\oplus	∇	\oplus	\oplus
∇	\oplus	∇	\oplus	\oplus
∇	\oplus	∇	\oplus	\oplus
∇	\oplus	∇	\oplus	\oplus

Yükarıdaki tablo # işleminin göre düzenlenmiştir. Buna göre ? yerine hangi şekiller gelmelidir ?
The table above is organized according to the # operation. Which of the following does the question mark stand for ?

- A) ∇ \oplus \times \otimes \odot B) ∇ \otimes \odot \otimes \odot ∇
C) ∇ \bullet \otimes \times \odot ∇ D) ∇ \oplus \otimes ∇ \oplus ∇
E) \oplus \otimes \otimes \oplus \oplus \oplus

6.

\star	\star	\star	\star
\star	\star	\star	\star
\star	\star	\star	\star
\star	\star	\star	\star

A) \star \star \star \star B) \star \star \star \star C) \star \star \star \star D) \star \star \star \star E) \star \star \star \star

7.

\rightarrow	\rightarrow	\rightarrow
\rightarrow	\rightarrow	\rightarrow
\rightarrow	\rightarrow	\rightarrow
\rightarrow	\rightarrow	\rightarrow

A) \rightarrow B) \rightarrow \rightarrow \rightarrow C) \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow D) \rightarrow E) \rightarrow

8.

\rightarrow	\rightarrow	\rightarrow
\rightarrow	\rightarrow	\rightarrow
\rightarrow	\rightarrow	\rightarrow
\rightarrow	\rightarrow	\rightarrow

A) \rightarrow B) \rightarrow \rightarrow \rightarrow C) \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow D) \rightarrow E) \rightarrow

9.

∇	∇	∇
∇	∇	∇
∇	∇	∇
∇	∇	∇

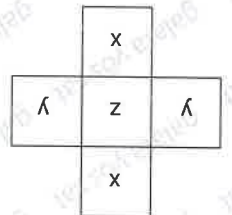
A) ∇ B) ∇ C) ∇ D) ∇ E) ∇

?	K↶	K↶
S↷	S↷	S↷
A↷	A↷	A↷

- A) K↶
- B) K↷
- C) K↵
- D) K↶
- E) K↵



- A) c
- B) a
- C) b
- D) f
- E) g



f	e	g	b	b	g	f
c	g	g	a	a	b	c
e	d	d	a	f	g	e
b	c	a	f	b	f	b
b	e	d	g	f	g	b
b	g	a	d	c	d	b
a	f	e	d	c	b	a

?	○	▼	▼	▽●
■	■○	—	—	□●
■	■	▼	▼	□▽
□▼	□●	■▼	▽○	⊠

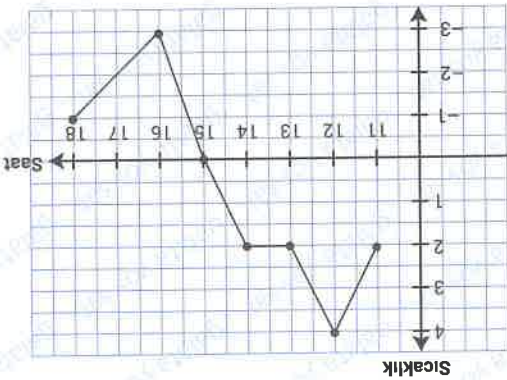
- A) ▼
- B) ▽
- C) ○
- D) ●
- E) —

- A) ○○
- B) △○
- C) □○
- D) ○○
- E) ○○

?	△○	○
□○	△□	□
▽○	△▽	▽

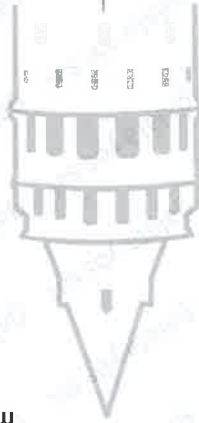
YÖS

KTS 19

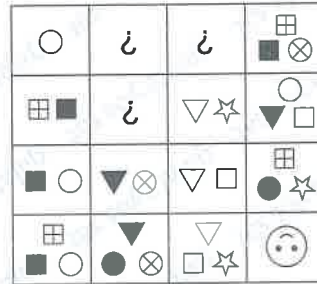


16. 17. ve 18. soruları grafiğe göre cevaplayınız.
Answer the questions 16 - 18 according to the graph.

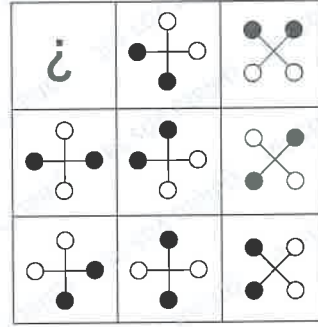
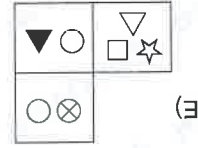
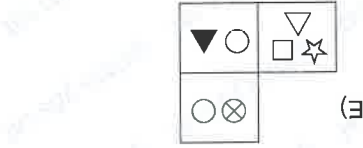
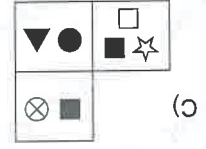
Yukarıdaki grafiğe bir bölgenin meteoroloji istasyonunda belli saatlerde ölçülen sıcaklıkları gösterilmektedir.
The graphic above shows the temperatures of a region measured at certain hours at a meteorology station.



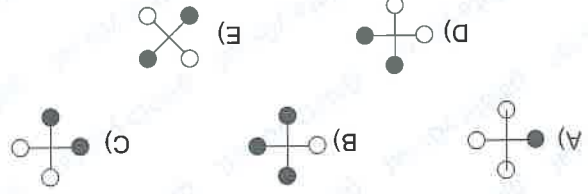
16. Hangi saatte ölçülen sıcaklığın, bir önceki saatte ölçülene göre farkı en fazladır?
At what hour is the difference between the temperature measured in the previous hour the most?
A) 12 B) 14 C) 15 D) 16 E) 18



14.



15.

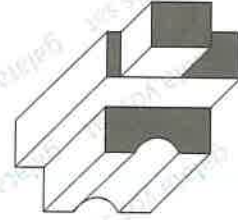


17. Hangi saatte ölçülen sıcaklık, bir önceki saatte ölçülen sıcaklıkla aynıdır ?
At what hour is the temperature measured at the same hour as the previous hour?

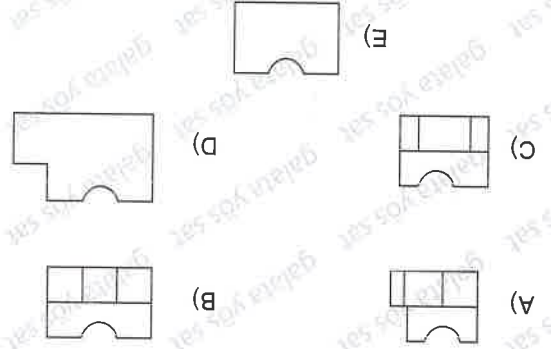
A) 12 B) 13 C) 14 D) 16 E) 18

18. En yüksek ve en düşük sıcaklıklar hangi saatlerde ölçülmüştür ?
When were the highest and lowest temperatures measured?

En yüksek	11	17
En düşük	13	18
A)	11	17
B)	13	18
C)	14	16
D)	12	15
E)	12	16



Yukarıdaki şeklin önden görünüşü hangisidir ?
What is the front view of the figure above?



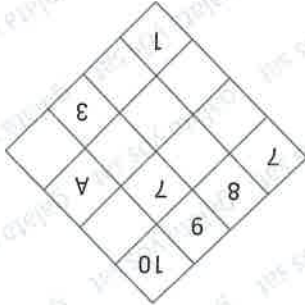
19.

21.



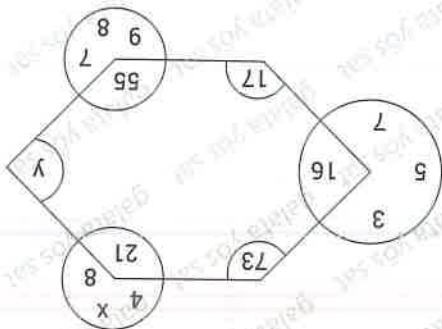
Belli bir kurala göre oluşturulan şekilde A kaçtır ?
The shape is created according to a rule. What is A?

A) 2 B) 4 C) 6 D) 7 E) 8



A) 12,54 B) 11,67 C) 11,76 D) 12,86 E) 9,28

$$x.y = ?$$



20.

Sayı dizisi belli bir kurala dizilmiştir. Buna göre 7.terim 77 olsaydı 3.terim kaç olurdu ?
The sequence of numbers is arranged in a certain rule. So if 7th term was 77, what would the 3rd term be?

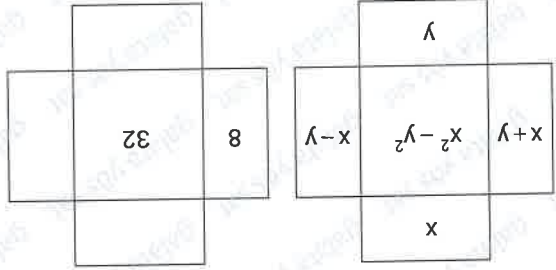
A) 113 B) 112 C) 110 D) 109 E) 97

98	97	94	89	82	73	62	49	34	17
----	----	----	----	----	----	----	----	----	----

22.

- A) 26 B) 28 C) 30 D) 32 E) 34

$$4x + 3y = ?$$



25.



E)



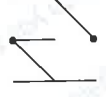
D)



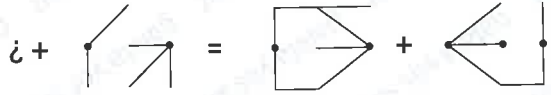
B)



C)



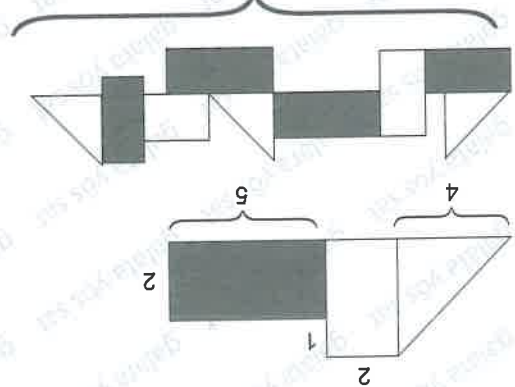
A)



24.

- A) 21 B) 22 C) 23 D) 24 E) 25

$$K = ?$$

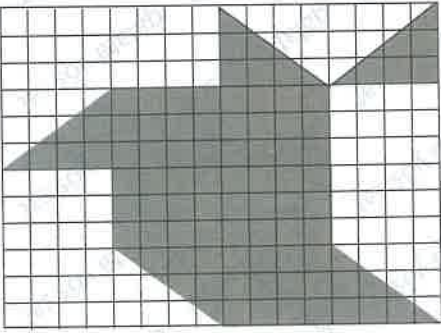


23.

26.

12a

16a

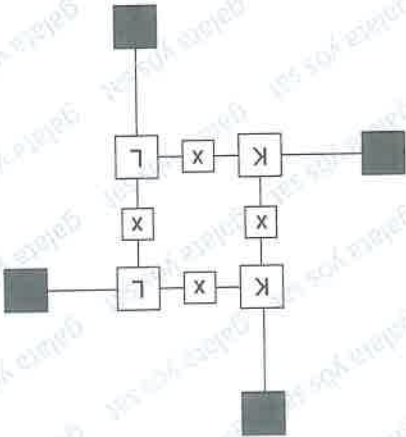


Taralı Alan = ? a^2
Shaded area = ? a^2

- A) 84 B) 90 C) 124 D) 144 E) 108

- A) 3 B) 6 C) 9 D) 12 E) 15

Şekilde siyah karelere yazılan sayıların toplamı 144 olduğuna göre $K+L$ toplamı kaçtır ?
Since the sum of the numbers written on the black squares in the figure is 144, what is the sum of $K+L$?



- A) 1 B) 2 C) 3 D) 4 E) 5

M	L	K	+
7L	$\frac{2}{M}$		L
4L+8			M

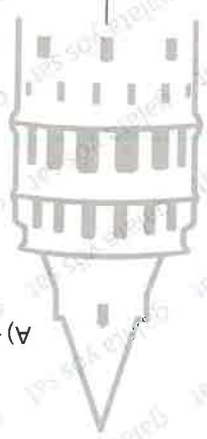
$\Rightarrow M - \frac{K}{L}$

29.

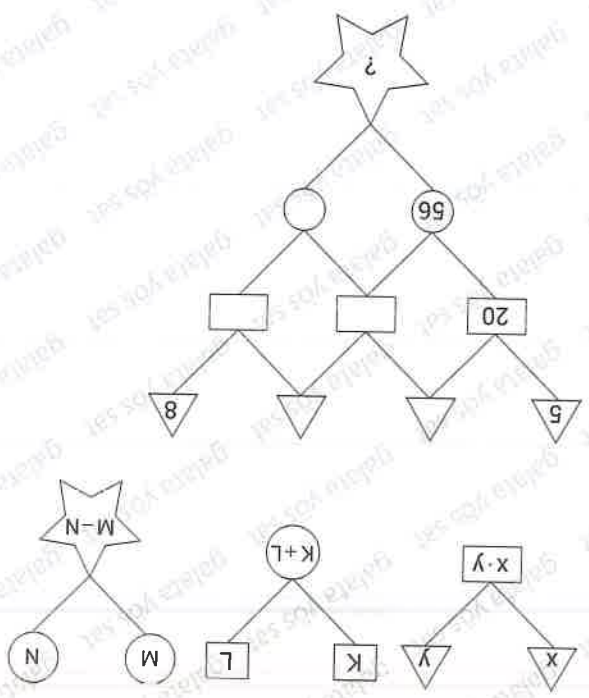
- A) 3 B) 4 C) 5 D) 6 E) 7

$\log_2 [1 + \log_3 x] = 1 \Rightarrow x = ?$

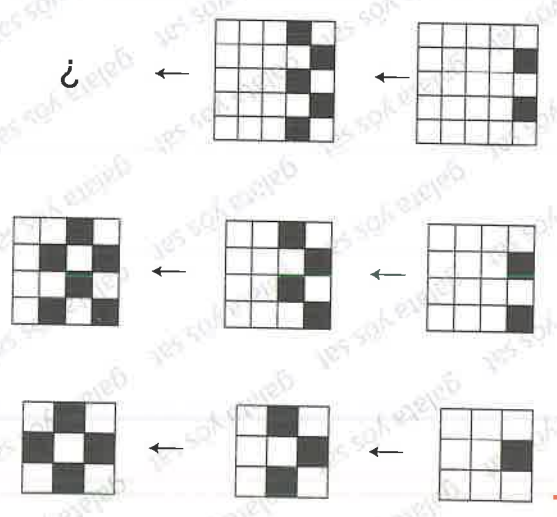
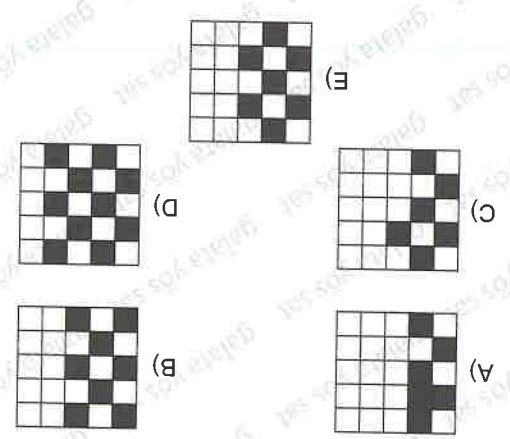
Matematik Maths



- A) -50 B) -52 C) -64 D) -83 E) 64



30.



28.

2. $\log 2 = a$ ve $\log 3 = b \Rightarrow \log \frac{8}{9} = ?$

A) $a+2b$

B) $a-2b$

C) $3a+2b$

E) $a+3b$

D) $3a-2b$

5. $x = \log_9 10$, $y = \log 9$, $z = \log \sqrt[3]{5}$

x, y, z sıralaması nasıldır?

How is the x, y, z order?

A) $x > y > z$

B) $z > x > y$

C) $z > y > x$

D) $y < x < z$

E) $y < z < x$

3. $\frac{1}{1 - \frac{1}{1 + \log_3 2}} = ?$

A) $\log 2$

B) $\log 6$

C) $\log_6 2$

E) $\log_2 6$

D) 1

4. $\log 2 = 0,30103 \Rightarrow \log 25 = ?$

A) 1,29794

B) 1,39764

C) 1,39763

D) 1,39794

E) 1,49763

7. $\log_{\sqrt{2}}(2 \cdot \sqrt[3]{4}) = ?$

A) $\frac{3}{10}$

B) 3

C) $\frac{3}{8}$

D) 2

E) $\frac{5}{3}$

6. $(\log_2 x)^2 - \log_2 x^4 - \log_2 32 = 0 \Rightarrow S.S = ?$

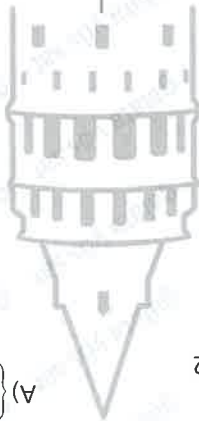
A) $\left\{ \frac{2}{1} \right\}$

B) $\left\{ \frac{8}{1} \right\}$

C) $\left\{ \frac{1}{8}, 32 \right\}$

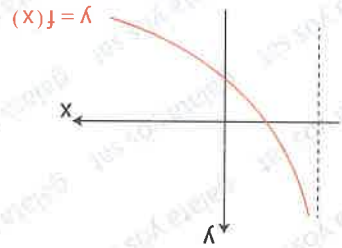
D) $\left\{ \frac{2}{1}, 32 \right\}$

E) $\{32\}$



8. $f(x) = 2^{4x-1} \Rightarrow f^{-1}(x) = ?$

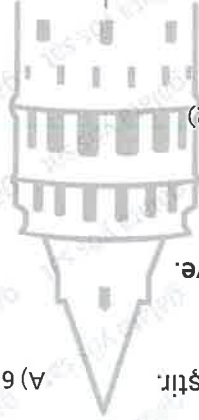
- A) $4 \log_2 x$ B) $\frac{1}{2} \log_4 x$ C) $\frac{1}{2} \log_4 x$ D) $\frac{4}{1 + \log_2 x}$ E) $\frac{4}{1 - \log_2 x}$



Yükarıda $f(x)$ fonksiyonunun grafiği verilmiştir. Buna göre $f(x)$ fonksiyonunun denklemini aşağıdakilerden hangisi olabilir ?

The graph of the function $f(x)$ is given above. So, which one can be the equation of the function $f(x)$?

- A) $y = \log_1^{\frac{1}{2}}(3x+2)$ B) $y = \log_2^{\frac{1}{2}}(3x+2)$ C) $y = \log_1^{\frac{1}{2}}(x-1)$ D) $y = \log_2^{\frac{1}{2}}(x+1)$ E) $y = \log_1^{\frac{1}{2}}(x-4)$



12. $f(x) = \sum_{k=1}^x (k+1)$, $g(x) = \sum_{k=1}^x (k^2-1) \Rightarrow (f \circ g)(3) = ?$

- A) 66 B) 68 C) 70 D) 72 E) 77

13. $\sum_{k=1}^n (2k-1) = 144 \Rightarrow \prod_{k=4}^n (1-k) = ?$

- A) $\frac{4}{1}$ B) $\frac{5}{1}$ C) $\frac{6}{1}$ D) $\frac{7}{1}$ E) $\frac{8}{1}$

10. $\sum_{k=1}^5 (3k-1) = ?$

- A) 38 B) 39 C) 40 D) 41 E) 2

14. $x^2 - 2x - 3 = 0$

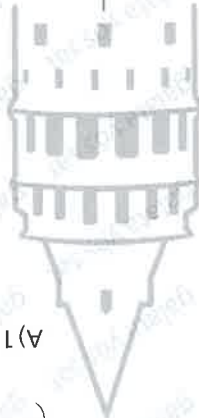
⇒ denkleminin kökleri / The roots of the equation

$$x_1 \text{ ve } x_2 \text{ ise } \prod_{k=1}^2 (3x_k - 1) = ?$$

- A) -3 B) -4 C) -6 D) -8 E) -32

15. $\sum_{k=1}^{10} \prod_{n=1}^k \frac{k(k+1)}{1} = ?$

- A) $\frac{7}{1}$ B) $\frac{8}{1}$ C) $\frac{9}{1}$ D) $\frac{10}{1}$ E) $\frac{11}{1}$

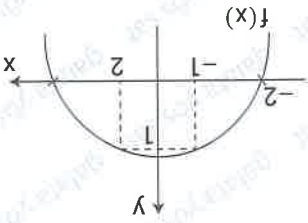


18.
$$\frac{\left(a^2 - \frac{1}{1}\right)^n \cdot \left(a - \frac{1}{1}\right)^{-2n}}{\left(b^2 - \frac{1}{1}\right)^{-n} \cdot \left(b + \frac{1}{1}\right)^a} = ?$$

- A) 1 B) $\frac{b}{a}$ C) $\frac{a}{b}$ D) $a-b$ E) $a+b$

19. Şekilde $f(x)$ fonksiyonunun grafiği verilmiştir.

The graph of the function $f(x)$ is given in the figure.



$f(x) = 1$ denkleminin sağlayan değerlerin toplamı kaçtır?
What is the sum of the values that satisfy the equation $f(x) = 1$?

- A) 1 B) 2 C) 3 D) 4 E) 5

- A) $3\sqrt{6}$ B) $3\sqrt{2}$ C) $3\sqrt{2}$ D) $\sqrt{3}$ E) $3\sqrt{3}$

16. $x^6 = 3\sqrt{3} = x = ?$

20. $f(x) = \begin{cases} 5, & x < 3 \\ 2, & x \geq 3 \end{cases}$

fonksiyonunun görüntü kümesindeki elemanların farkımı kaçtır?
What is the product of the elements in the image set of the function?

- A) 8 B) 9 C) 10 D) 12 E) 15

23. $\frac{(3^x - 8)(12x - 11)}{x^2 - 13x} > 0$

esitizliğini sağlayan x in alabileceği kaç farklı doğal sayı değeri vardır?
How many different natural number values x can take that satisfy its inequality?

- A) 6 B) 7 C) 8 D) 10 E) 11

21. $P(x) = x^5 - 15x^4 - 31x^3 - 50x^2 - 13x - 18$ veriliyor.

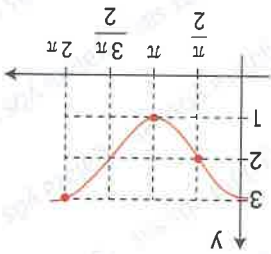
Buna göre, $P(8x + 9)$ polinomunun katsayılar toplamı kaçtır?

What is the sum of the coefficients of the polynomial $P(8x + 9)$?

- A) 28 B) 35 C) 40 D) 50 E) 86

24. Şekilde $[0, 2\pi]$ aralığında grafiği verilen $y = f(x)$ fonksiyonunun denklemini aşağıdakilerden hangisidir?

Which of the following is the equation of the function graphed $y = f(x)$ in the interval $[0, 2\pi]$ in the figure?



- A) $y = 2 - \cos x$
B) $y = \cos 2x$
C) $y = 2 + \cos x$
D) $y = 2 + \cos \frac{x}{2}$
E) $y = 1 + \cos x$

22. $x^2 - 5x + 2k - 1 = 0$

denkleminin kökleri a ve b dir. a and b are roots.

$a^2 + 4ab + 3b^2 = 35 \Rightarrow k = ?$

- A) $\frac{2}{3}$ B) 2 C) $\frac{5}{2}$ D) 3 E) $\frac{7}{2}$

25. $z = 2 \cdot (\cos 15^\circ + i \cdot \sin 15^\circ)$
 $\Rightarrow |z^3| = ?$

- A) 4 B) 6 C) 8 D) 12 E) 16

30. $z = -16$ sayısının kareköklerinden biri aşağıdakilerden hangisidir?
Which of the following is one of the square roots of the number $z = -16$?

- A) $-4i$ B) -4 C) $-2i$ D) $2i$ E) $16i$

- A) $12i$ B) $-12i$ C) -12 D) 12 E) $12+12i$

26. $z_1 = 3 \cdot \text{cis}10^\circ$
 $z_2 = 4 \cdot \text{cis}80^\circ$
 $\Rightarrow z_1 \cdot z_2 = ?$

27. $\tan x - \cot x = 1 \Rightarrow \tan^6 x + \cot^6 x$

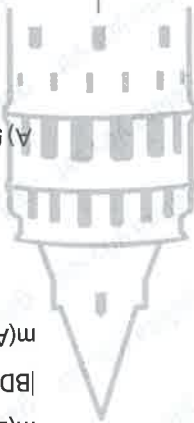
- A) 6 B) 12 C) 18 D) 24 E) 30

28. $P(x,y) = x^4 y^5 - xy = P(1-i, 1+i) = ?$

- A) $16-14i$ B) $14-6i$ C) $16+4i$ D) $16+16i$ E) $14+16i$

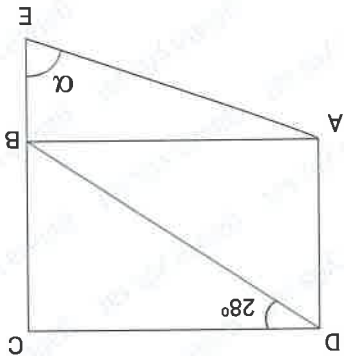
29. $z = \frac{1-i}{1+i}^{50} = ?$

- A) -1 B) $-i$ C) 0 D) 1 E) i



1.

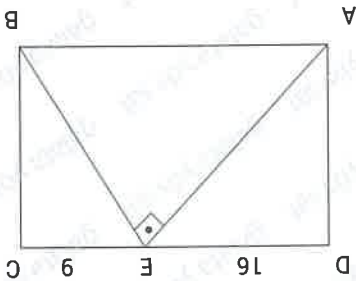
ABCD dikdörtgen
ABCD rectangulär
 $m(\widehat{BDC}) = 28^\circ$
 $|BD| = |CE|$
 $m(\widehat{AEB}) = \alpha = ?$



- A) 52 B) 54 C) 56 D) 59 E) 62

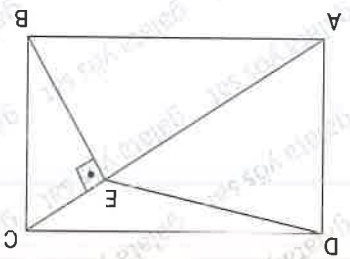
2.

ABCD dikdörtgen
ABCD rectangulär
[AE] \perp [EB]
 $|EC| = 9$
 $|DE| = 16$
 $\angle(ABCD) = ?$



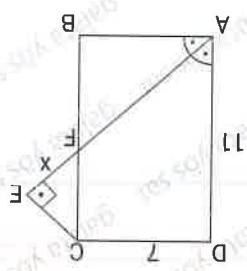
- A) 50 B) 60 C) 64 D) 74 E) 80

3. ABCD dikdörtgen
 ABCD rektangular
 $[CE] \perp [BE]$
 $|CE| = 2$ cm
 $|AE| = 8$ cm
 $|DE| = ?$



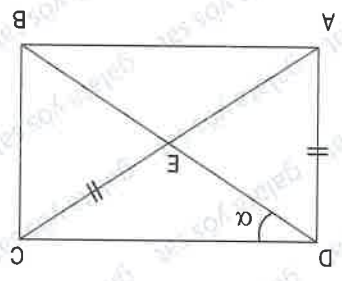
- A) $\sqrt{13}$
 B) $2\sqrt{13}$
 C) $3\sqrt{13}$
 D) $4\sqrt{13}$
 E) $5\sqrt{13}$

6. ABCD dikdörtgen
 ABCD rektangular
 $[CE] \perp [AE]$
 $m(\widehat{DAE}) = m(\widehat{EAB})$
 $|CD| = 7$
 $|AD| = 11$
 $|FE| = x = ?$



- A) $2\sqrt{2}$
 B) $3\sqrt{2}$
 C) $4\sqrt{2}$
 D) $5\sqrt{2}$
 E) 7

4. ABCD dikdörtgen
 ABCD rektangular
 $|AD| = |EC|$
 $m(\widehat{BDC}) = \alpha = ?$

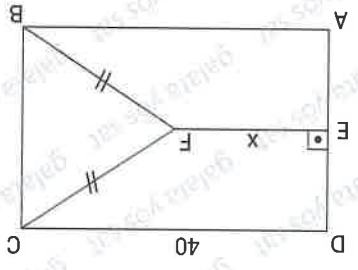


- A) 30
 B) 45
 C) 60
 D) 65
 E) 70

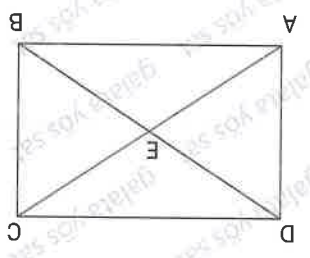
7. ABCD dikdörtgen
 ABCD rektangular
 $[EF] \perp [DA]$
 $|FB| = |FC| = 20$
 $|CD| = 40$
 $\widehat{C(ABCD)} = 144$
 $|EF| = x = ?$



- A) 24
 B) 25
 C) 26
 D) 28
 E) 32

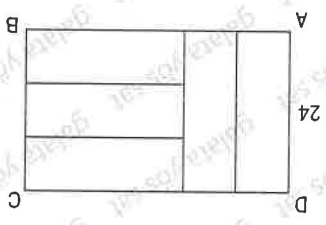


5. ABCD dikdörtgen
 ABCD rektangular
 $|AE| = 3x + 2$
 $|BE| = 7x - 8$
 $|BD| = ?$



- A) 14
 B) 15
 C) 16
 D) 17
 E) 19

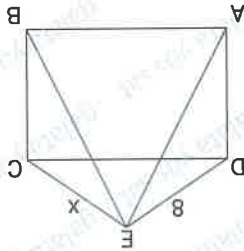
8. Kisa kenarı 24 cm olan ABCD dikdörtgeni 5 eşit dikdörtgenlere bölmüştür. The ABCD rectangle, whose short side is 24 cm, is divided into 5 equal rectangles.



- A) 100
 B) 110
 C) 118
 D) 128
 E) 132

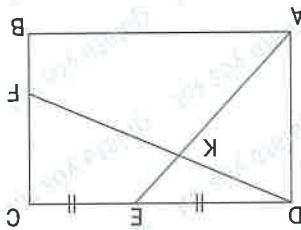
Perimeter ABCD = ?
 $\widehat{C(ABCD)} = ?$

9. ABCD dikdörtgen
 $|AE| = 7$
 $|DE| = 8$
 $|EB| = 9$
 $|EC| = x = ?$



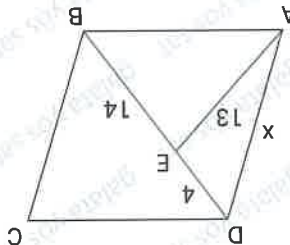
- A) $\sqrt{61}$ B) $\sqrt{62}$ C) $\sqrt{71}$ D) $\sqrt{85}$ E) $4\sqrt{6}$

10. ABCD dikdörtgen
 $|DE| = |EC|$
 $|CF| = 4 |FB|$
 $|AE| = 21$
 $|EK| = ?$



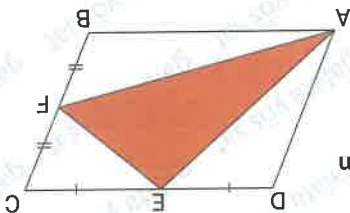
- A) 4 B) 5 C) 6 D) 7 E) 9

11. ABCD eşkenar dörtgen
 $|DE| = 4$
 $|AE| = 13$
 $|EB| = 14$
 $|AD| = x = ?$



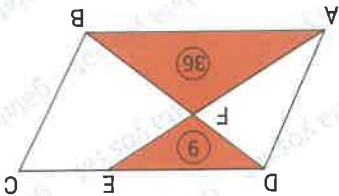
- A) 12 B) 13 C) 14 D) 15 E) 16

12. ABCD paralelkenar
 $|DE| = |EC|$
 $|CF| = |FB|$
 $A(\triangle FE) = 12$
 $A(ABCD) = ?$



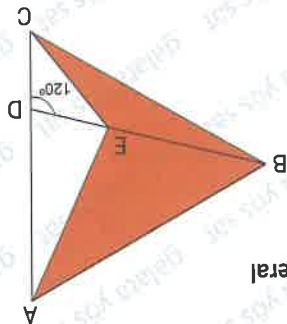
- A) 32 B) 44 C) 46 D) 48 E) 50

13. ABCD paralelkenar
 $A(\triangle DEF) = 9 \text{ m}^2$
 $A(\triangle ABF) = 36 \text{ m}^2$
 $\frac{|FA|}{|EF|} = ?$



- A) $\frac{1}{2}$ B) $\frac{1}{4}$ C) $\frac{5}{1}$ D) $\frac{6}{1}$ E) $\frac{9}{1}$

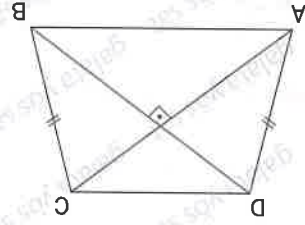
14. ABCE konkav dörtgen
 $m(\widehat{BDC}) = 120^\circ$
 $|AC| = 8$
 $|BE| = 3\sqrt{2}$
 $A(ABCE) = ?$



- A) $6\sqrt{6}$ B) $10\sqrt{6}$ C) $14\sqrt{2}$ D) $12\sqrt{6}$ E) $16\sqrt{2}$

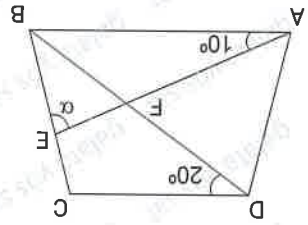
17. ABCD bir yamuk
 $|AD| = |BC|$
 $[AC] \perp [BD]$
 $|CD| = 4$
 $|AB| = 6$
 $|AC| = ?$

- A) 5 B) $5\sqrt{2}$ C) $6\sqrt{2}$ D) 6 E) $7\sqrt{2}$



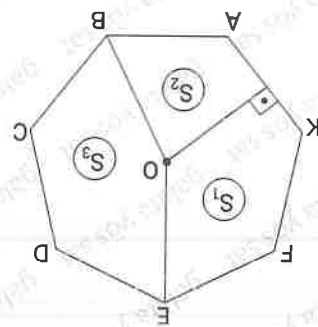
16. ABCD bir yamuk
 $|AD| = |BC|$
 $|AE| = |BD|$
 $m(\widehat{BAE}) = 10^\circ$
 $m(\widehat{BDC}) = 20^\circ$
 $m(\widehat{AEB}) = \alpha = ?$

- A) 70 B) 75 C) 80 D) 85 E) 95



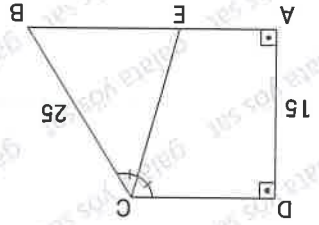
15. ABCDEF düzğün yedigen
 ABCDEFK yedigen
 O: ABCDEFK yedigen
 ağırlık merkezi
 O = ABCDEFK heptagon
 center of gravity
 $\frac{S_1 - S_2}{S_3} = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5



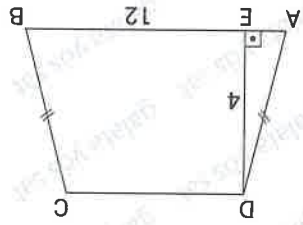
20. ABCD bir yamuk
 $[AD] \perp [AB]$
 $m(\widehat{DCE}) = m(\widehat{ECB})$
 $|AD| = 15$
 $|BC| = 25$
 $|DC| - |AE| = ?$

- A) 3 B) 4 C) 5 D) 6 E) 7



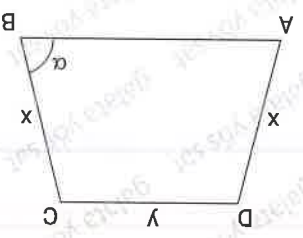
19. ABCD bir yamuk
 $|AD| = |BC|$
 $|DE| = 4$
 $|EB| = 12$
 $A(\widehat{ABCD}) = ?$

- A) 24 B) 30 C) 34 D) 44 E) 48



18. ABCD bir yamuk
 $|AD| = |BC| = x$
 $|CD| = y$
 $|AB| = x + y$
 $m(\widehat{ABC}) = \alpha = ?$

- A) 30 B) 40 C) 45 D) 50 E) 60



Mat	Problems / Problems	Mat	Word / Length	Mat	Order - Order
IO	Problems / Problems	IO	Word / Length	IO	Order - Order
Geo	Problems / Problems	Geo	Word / Length	Geo	Order - Order

Mat	Algebra / Algebra	Mat	Algebraic Equations	Mat	Algebraic Equations
IO	Algebraic Equations / Algebraic Equations	IO	Algebraic Equations / Algebraic Equations	IO	Algebraic Equations / Algebraic Equations
Geo	Algebraic Equations / Algebraic Equations	Geo	Algebraic Equations / Algebraic Equations	Geo	Algebraic Equations / Algebraic Equations

Mat	Algebra / Algebra	Mat	Algebraic Equations	Mat	Algebraic Equations
IO	Algebraic Equations / Algebraic Equations	IO	Algebraic Equations / Algebraic Equations	IO	Algebraic Equations / Algebraic Equations
Geo	Algebraic Equations / Algebraic Equations	Geo	Algebraic Equations / Algebraic Equations	Geo	Algebraic Equations / Algebraic Equations

KTS-20

Mat	Logarithm, Induction	Mat	Custom Defined Functions	Mat	Custom Defined Functions
IO	Figure Relations, Table	IO	Figure Relations, Table	IO	Figure Relations, Table
Geo	Dikdörtgen / Rectangular	Geo	Kare / Square	Geo	Kare / Square

Mat	Karmatik Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry	Mat	Trigonometri / Trigonometry
IO	Şekil Hükümler Tamamlama	IO	KLM	IO	Çevre - Alan Environment - Area
Geo	Yamuk / Trapezoid	Geo	Eğikler Dörtgen / Rhombus	Geo	Paralelkenar II. / Parallel Edge II

Mat	Modüler Aritmetik	Mat	Polinom / Polynomial	Mat	İl-Devreden Denklem
IO	Küp Sayma Tamamlama	IO	Çizimler / Graphics	IO	Çizimler / Graphics
Geo	Çokgenler / Polygons	Geo	Dörtgen / Quadrilateral	Geo	Paralelkenar I. / Parallelogram I

Mat	İtem / Operation	Mat	Kartesiyen Çarpım ve Fonksiyonlar	Mat	Kümeler / Sets
IO	Denklemler Eşleştirmesi / Equation Matching	IO	Eşleştirmesi / Matching	IO	Oranlar / Scales
Geo	Açı-Üçgen İlişkisi / Angle-Side Relation in Triangle	Geo	Üçgenin Alanı / Area of Triangles	Geo	Üçgenin Alanı / Area of Triangles

Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers	Mat	Oran Orantı / Ratio and Proportion
IO	Sayı Bağlantıları / Number Relations	IO	Tablolar / Tables	IO	Tablolar / Tables
Geo	Kenarortay / Median	Geo	Üçgenin Benzerlik	Geo	Üçgenin Benzerlik

Mat	Bağıt Eşitsizlik ve Mutlak Değer	Mat	Çarpma Ayrma / Factorization	Mat	Kökü Sayılar / Radical Expressions
IO	Sayı Bağlantıları / Number Relations	IO	İşlemler / Operations	IO	İşlemler / Operations
Geo	Açıortay / Bisector	Geo	İkizkenar ve Eşkenar Üçgen	Geo	Üçgen (Köklü) / Right triangle

Mat	İtem Üçgen ve Rasyonel Sayılar	Mat	Birinci Devreden Denklem	Mat	Üçgenin Benzerlik
IO	Şifreler / Passwords	IO	Sayı Benzerlik / Number patterns	IO	Sayı Benzerlik / Number patterns
Geo	Açılar / Angles	Geo	Üçgenin Alanı / Angles in triangles	Geo	Üçgen / Right triangle

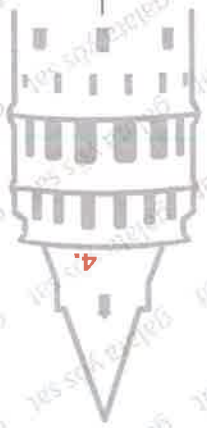


A) a B) b C) c D) d E) e

$[(b \star a) \star (e \star c)] \star (b \star d) = ?$

e	c	d	e	a	b
d	b	c	d	e	a
c	a	b	c	d	e
b	e	a	b	c	d
a	d	e	a	b	c
\star	a	b	c	d	e

2.



4.

?		

- A)
- B)
- C)
- D)
- E)

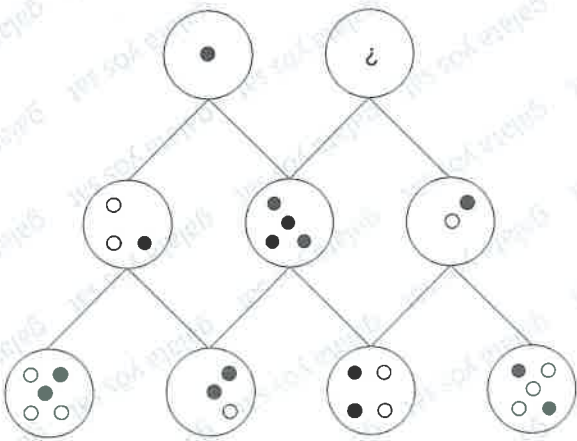
	?	

- A)
- B)
- C)
- D)
- E)

	?	

- A)
- B)
- C)
- D)
- E)

3.



- (A)
- (B)
- (C)
- (D)
- (E)

	?	

- (A)
- (B)
- (C)
- (D)
- (E)

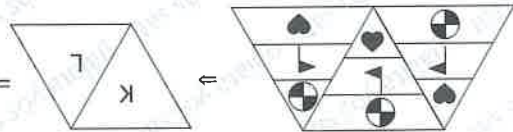
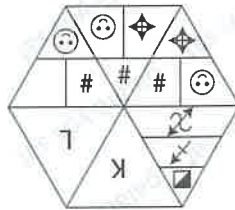


7.

	?	

- (A)
- (B)
- (C)
- (D)
- (E)

5.



- (A)
- (B)
- (C)
- (D)
- (E)

6.

E) TBL

C) YEL

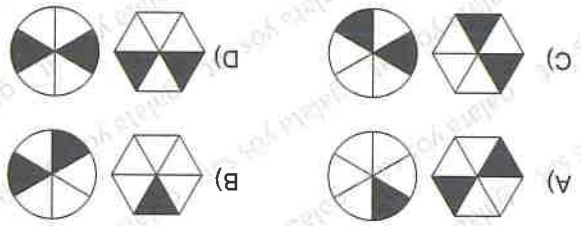
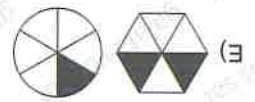
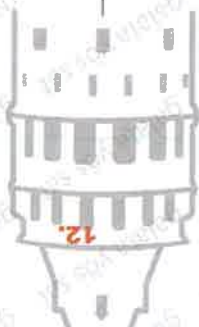
D) MEY

A) İBİ

B) ÖYS

SAT	KUR	SU	TUS
KDÜ	ZÜ	YÖS	ÜÜY
TİM	BE	YLI	?
GAL	ATA	EĞİ	LTE

10.



		?	
	?		

9.

E)

C)

D)

A)

B)

		?

D)

#	?
!	?

E)

#	!
!	?

A)

#	?
!	!

B)

#	?
!	!

C)

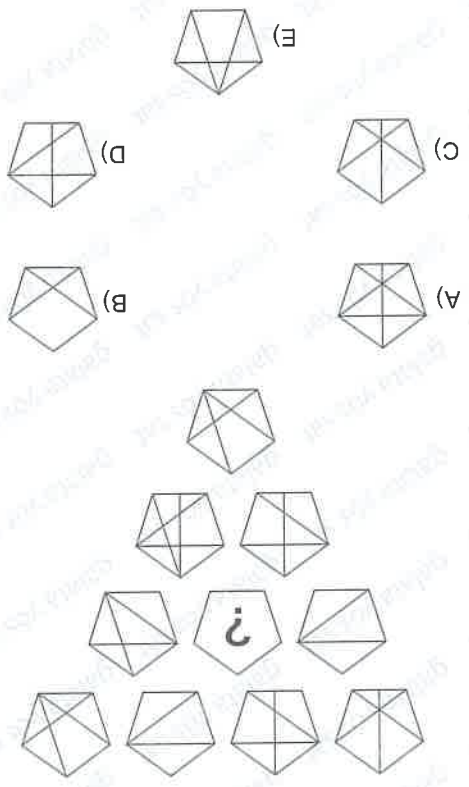
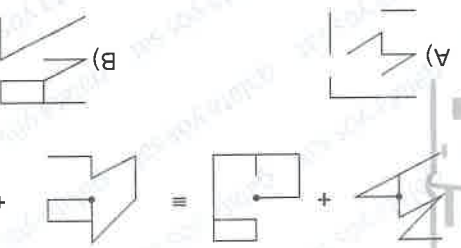
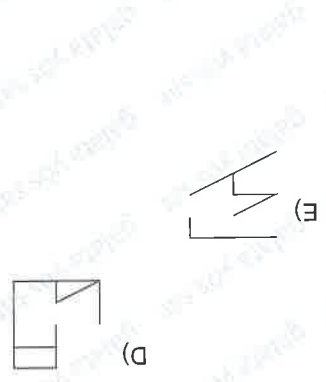
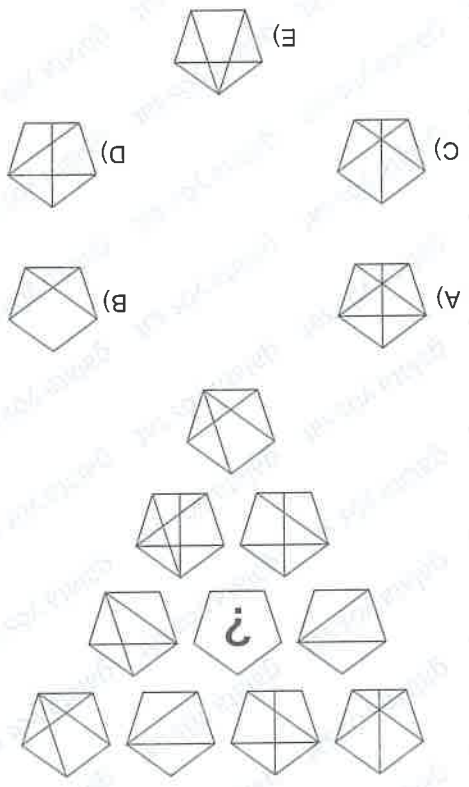
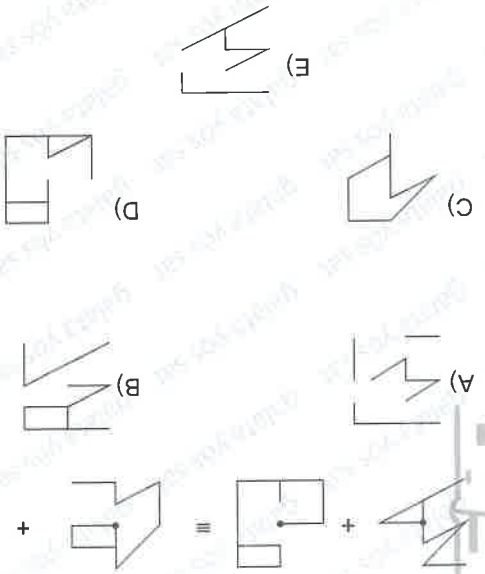
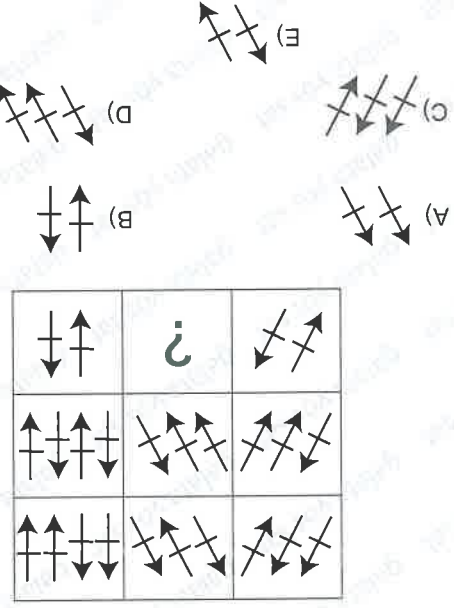
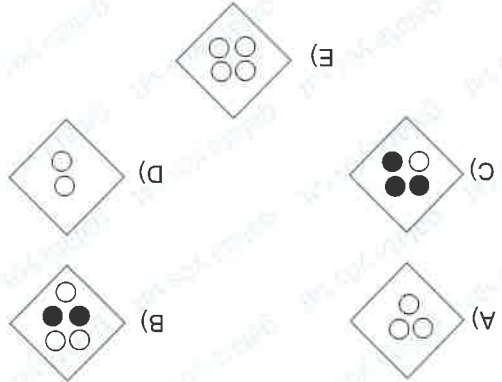
#	!
!	?

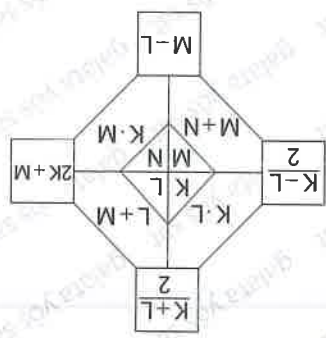
<table border="1"><tr><td>L</td><td>☾</td></tr><tr><td>K</td><td>☼</td></tr></table>	L	☾	K	☼	?					
L	☾									
K	☼									
<table border="1"><tr><td>K</td><td>☼</td></tr><tr><td>L</td><td>☾</td></tr></table>	K	☼	L	☾	<table border="1"><tr><td>i</td><td>!</td></tr><tr><td>s</td><td>#</td></tr></table>	i	!	s	#	
K	☼									
L	☾									
i	!									
s	#									
<table border="1"><tr><td>K</td><td>☼</td></tr><tr><td>L</td><td>☾</td></tr></table>	K	☼	L	☾	<table border="1"><tr><td>i</td><td>!</td></tr><tr><td>?</td><td>#</td></tr></table>	i	!	?	#	
K	☼									
L	☾									
i	!									
?	#									

11.

YÖS

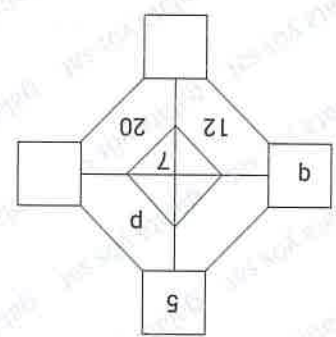
KTS 20





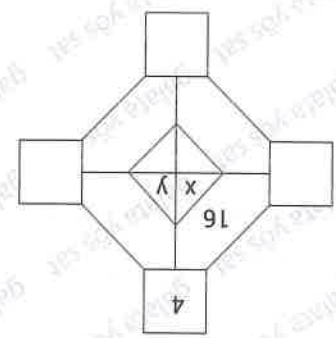
19 - 20 soruları yukarıdaki tabloya göre cevaplandırılacaktır.

Questions 19-20 will be answered according to the above table.



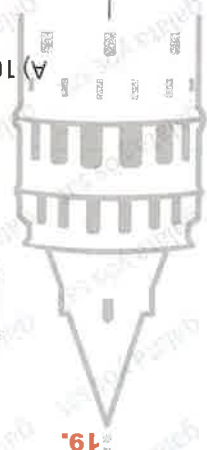
$$= p + p = ?$$

- A) 10 B) 11 C) 12 D) 13 E) 14

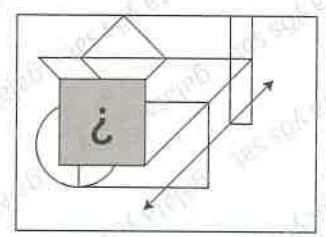


$$\Rightarrow x^2 + y^2 = ?$$

- A) 28 B) 32 C) 41 D) 94 E) 112

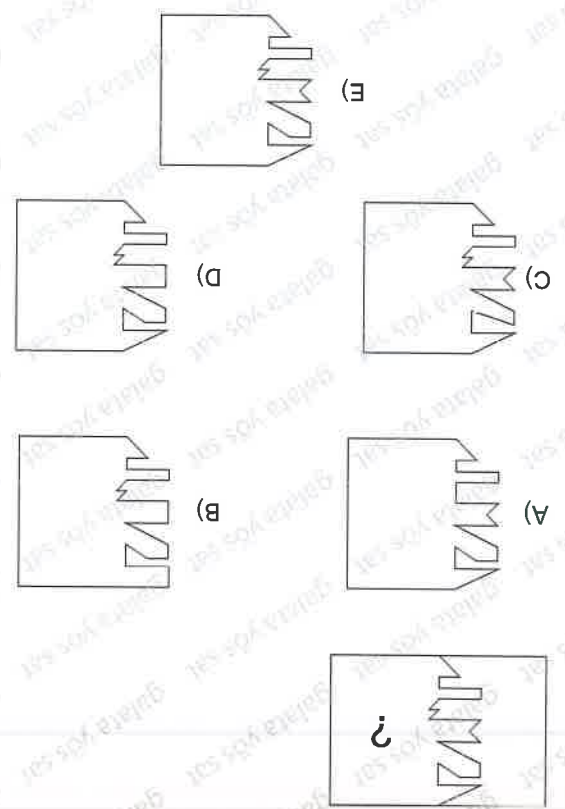
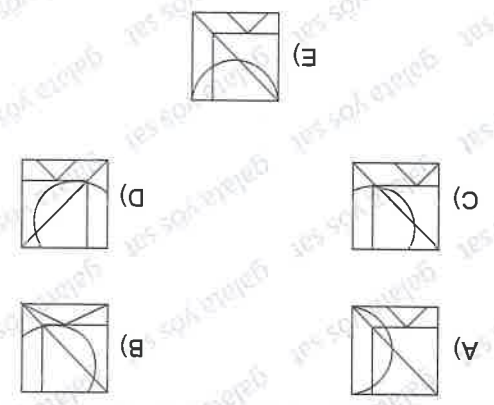


19.

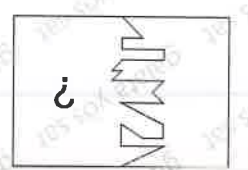


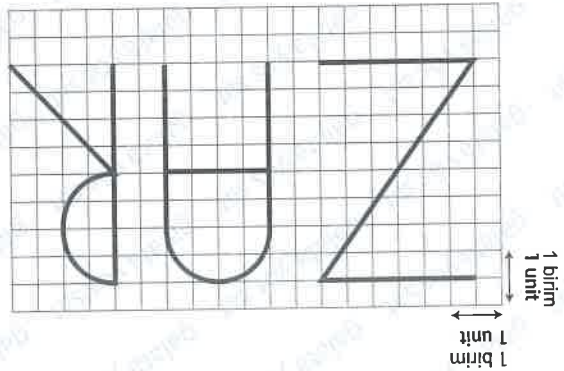
18.

Şekilde boş alanın yerine aşağıdaki hangi şekil gelir? What figure below replaces the empty space in the figure?



17.

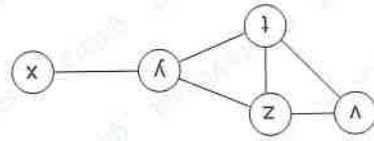




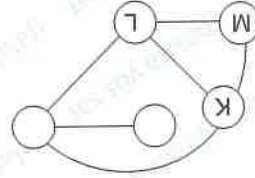
21.

ZAR kelimisini yazmak için kaç birim tel kullanılmıştır ?
 ($\pi = 3$ alınız)
 How many units of wire are used to write the word ZAR?

- A) $29 + 4\sqrt{2}$
- B) $26 + 2\sqrt{2}$
- C) $34 + 3\sqrt{2}$
- D) $29 + 2\sqrt{2}$
- E) $26 + 3\sqrt{2}$



I.

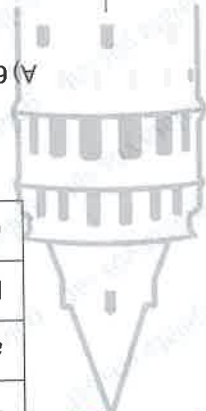


II.

K, L, M = ?

- A) \overline{z} \overline{t} \overline{v}
- B) \overline{y} \overline{t} \overline{v}
- C) \overline{t} \overline{y} \overline{v}
- D) \overline{v} \overline{z} \overline{y}
- E) \overline{x} \overline{z} \overline{v}

22.



24.

+	a	b	c
a	c+6		
b		a-10	
c			

x	a	b	c
a			8
b			
c			

$= a^2 + c^2 = ?$

- A) 60
- B) 70
- C) 80
- D) 84
- E) 90

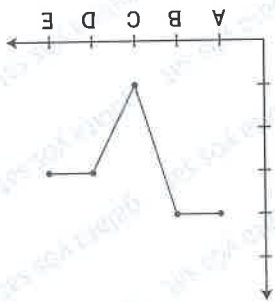
25.

3	4	5	6
42	54	66	78
X	6	33	48
Y	12	72	84

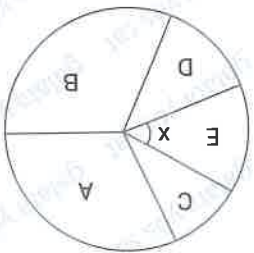
$X + Y = ?$

- A) 89
- B) 73
- C) 44
- D) 32
- E) 26

23.



$\Rightarrow x = ?$



- A) 48
- B) 54
- C) 72
- D) 84
- E) 90

			m
72	48	α	
54		k	
m	α	k	x

$k \times \alpha \times m = ?$

- A) 336 B) 576 C) 504 D) 432 E) 448

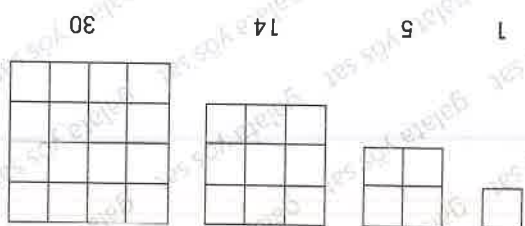
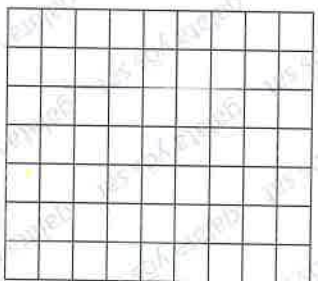
28.

27. $\begin{matrix} 2 & 4 & 8 & 3 & 5 & 1 & 9 & 6 \\ 4 & 2 & 6 & 7 & 2 & 1 & 8 & 4 \\ 5 & 6 & 8 & a & b & c & 7 & 6 \end{matrix} \Rightarrow abc = ?$

- A) 631 B) 251 C) 741 D) 731 E) 632

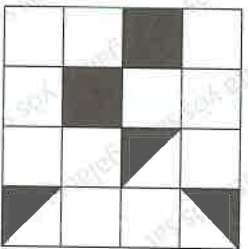
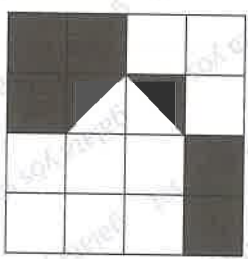


- A) 186 B) 196 C) 168 D) 212 E) 182



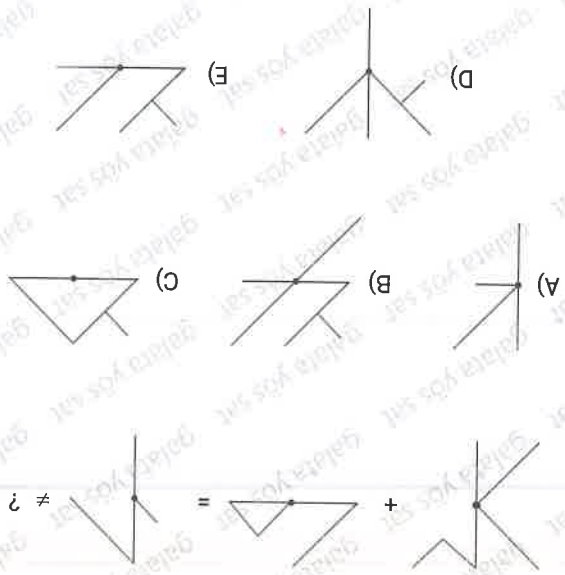
26.

- A) 27/32 B) 7/32 C) 17/32 D) 13/16 E) 5/8



$\Rightarrow 25/32$

29.



YÖS

KTS 20

1. Aşağıdaki fonksiyonlardan kaç tanesi birebir'dir ?
How many of the following functions are injective?

- I. $f: \mathbb{R} \rightarrow \mathbb{R}$, $f(x) = 2 - 3x$
- II. $f: \mathbb{R} \rightarrow \mathbb{R}$, $f(x) = x^2 + 2$
- III. $f: \mathbb{R} \rightarrow \mathbb{R}$, $f(x) = \sqrt[3]{x-1}$
- IV. $f: \mathbb{R} \rightarrow \mathbb{R}$, $f(x) = x^2 - 4$
- V. $f: \mathbb{R} \rightarrow \mathbb{R}$, $f(x) = x^3 + 1$

- A) 1 B) 2 C) 3 D) 4 E) 5

2. $f: (1, \infty) \rightarrow \mathbb{R}$, $f(x) = 1 - 2 \log(x-1)$
 $\Rightarrow f^{-1}(x) = ?$

- A) $10^{-x} - 1$
B) $\sqrt{10^{-x} + 1}$
C) $\sqrt{10^{-x} - 1}$
D) $10^{x+1} + 1$
E) $\sqrt{10^{x+1} + 1}$

3. $f(x) = 2x + 3$ ise $f(x+1)$ 'in $f(x-1)$ cinsinden ifadesi hangisidir?
what is $f(x+1)$ in terms of $f(x-1)$?

- A) $4 + f(x-1)$
B) $2 + f(x-1)$
C) $f(x-1) - 2$
D) $f(x-1) - 4$
E) $f(x-1) + 1$

4.

$$f(x) = \frac{x^2 - 4x + 5}{x^2 + 1}$$

fonksiyonun en geniş tanım kümesi nedir ?
What is the widest domain of the function?

A) $\mathbb{R} - \{-1, 5\}$

B) $\mathbb{R} - \{1, 5\}$

C) $\mathbb{R} - \{-5, 1\}$

D) $\mathbb{R} - \{-4, 1\}$

E) \mathbb{R}

5.

$$f(x) = \begin{cases} x+2, & x > 0 \\ 2-x, & x \leq 0 \end{cases}$$

$$g(x) = \begin{cases} 3x+2, & x \geq 1 \\ 2x+3, & x < 1 \end{cases}$$

$$= (f+g)(x) = ?$$

A) $\begin{cases} x+4, & x \leq 0 \\ 2x+5, & 0 < x < 1 \\ 4x+4, & x \geq 1 \end{cases}$

B) $\begin{cases} x+4, & x \leq 0 \\ 2x+5, & 0 < x < 1 \\ 4x+4, & x \geq 1 \end{cases}$

C) $\begin{cases} x+5, & x \leq 0 \\ 3x+5, & 0 < x < 1 \\ 4x+4, & x \geq 1 \end{cases}$

D) $\begin{cases} x+5, & x \leq 0 \\ 3x+5, & 0 < x < 1 \\ 4x+3, & x \geq 1 \end{cases}$

E) $\begin{cases} x+4, & x \leq 0 \\ 3x+5, & 0 < x < 1 \\ 4x+4, & x \geq 1 \end{cases}$

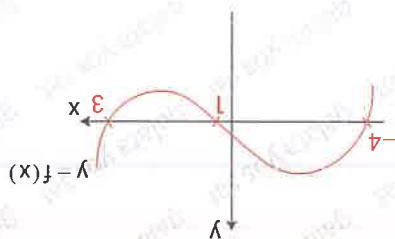
6.

$$f: \mathbb{R} - \{2\} \rightarrow \mathbb{R} - \{-1\}, f(x) = \frac{ax-c}{2x-b}$$

fonksiyonu birebir ve örten ise $a+b$ kaçtır?
what is $a+b$ if the function is injective and surjective?

- A) 1 B) 2 C) 3 D) 4 E) 5

7.

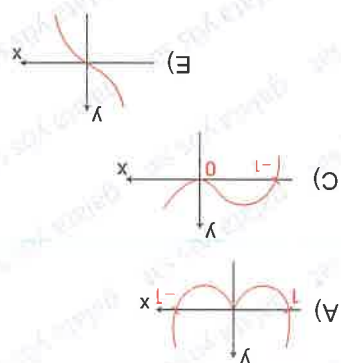


$$(x^2 - 9) f(x) \leq 0 \Rightarrow S.S = ?$$

- A) $(-8, -3]$
 B) $(-3, 3]$
 C) $[-4, 3] \cup [1, \infty)$
 D) $(-\infty, -4] \cup [-3, 1]$
 E) $(-8, -4] \cup [-3, 1] \cup \{3\}$

8.

$f(x) = x^2 + |x|$ grafiği hangisidir? / which is the $f(x)$ chart?



9.

Aşağıdaki fonksiyonlardan hangisi çift fonksiyondur? Which of the following functions are even functions?

- A) $|x| + x$
 B) x^3
 C) $x^2 - 2$
 D) $\cos x + \sin x$
 E) $x^2 + x$

12.

$f(x)$ tek ve $g(x)$ çift fonksiyon olmak üzere $f(x)$ odd and $g(x)$ even functions.

$$f(-2) + g(1) = 8$$

$$f(2) + g(-1) = 6$$

$$\Rightarrow f(-2) = ?$$

- A) -2
 B) -1
 C) 1
 D) 4
 E) 5

11.

$$f(x) = \arcsin(3x + 1)$$

fonsiyonunun en geniş tanım kümesi hangisidir? what is the widest domain of the function?

- A) $[-\frac{2}{3}, 0]$
 B) $(-\frac{2}{3}, \frac{3}{2})$
 C) $(0, \frac{3}{2})$
 D) $(-\frac{1}{2}, \frac{1}{2})$
 E) $(-1, 1)$

10.

$$f(x) = \sqrt{\log \frac{5x-1}{x+2}}$$

fonsiyonunun en geniş tanım kümesi hangisidir? what is the widest domain of the function?

- A) $(-\frac{3}{2}, 0)$
 B) $(-\frac{2}{3}, \frac{3}{2})$
 C) \mathbb{R}
 D) $(-\frac{1}{2}, \frac{1}{2})$
 E) $\mathbb{R} - [-2, \frac{4}{3}]$

13. $\log_2 8 + \log_4 64 = a$
 $= a^{\log_6 7} = ?$

- A) 5 B) 6 C) 7 D) 8 E) 9

14. $|x| + |y| = 4$
 fonksiyonunun belirttiği kapalı şeklin alanı kaçtır?
 what is the area of the closed shape specified by the
 $|x| + |y| = 4$ function?

- A) 64 B) 52 C) 40 D) 36 E) 32

15. $1.5 + 2.7 + 3.9 + \dots + 9.21 = ?$

- A) 1410 B) 1275 C) 705 D) 570 E) 135

16. $\sum_{k=1}^{20} k \cdot 2^{k-1} = ?$

- A) $19 \cdot 2^{20} + 1$ B) $20 \cdot 2^{19} + 1$ C) $20^{20} - 1$ D) $2^{19} + 1$ E) $2^{20} + 1$

19. $\log\left(\frac{x}{y}\right) = ?$

19. $\log x = 3.602$ $\log y = 2.699$

- A) 6,903 B) -6,903 C) 5,903 D) 3,903 E) 6,097

20. $7^x = 21^y \Rightarrow \frac{x}{x+y} = ?$

- A) $\log_8 21$ B) $\log_8 7$ C) $\log_8 147$ D) $\log_7 3$ E) $\log_7 21$

17. $\frac{1}{2} + \frac{3i}{3} + \dots + \frac{20i}{19} = ?$

- A) $\frac{20i}{18}$ B) $1 - \frac{20i}{1}$ C) $\frac{20i}{19}$ D) $2 - \frac{21i}{1}$ E) $1 - \frac{19i}{1}$

18. $\sum_{m=1}^2 \sum_{n=1}^3 \sum_{e=1}^4 (mne) = ?$

- A) 160 B) 180 C) 200 D) 220 E) 240

21. $4 \cos \frac{7}{\pi} \cdot \cos \frac{7}{2\pi} \cdot \cos \frac{7}{4\pi} = ?$

- A) $-\frac{10}{1}$ B) $-\frac{8}{1}$ C) $-\frac{6}{1}$ D) $-\frac{4}{1}$ E) $-\frac{2}{1}$

25. $\frac{1}{1} + \frac{1}{1} + \frac{1}{1} + \frac{1}{1} + \frac{1}{1} + \frac{1}{1} + \frac{1}{1} + \frac{1}{1} = ?$

- A) $\frac{23}{2}$ B) $\frac{13}{6}$ C) $\frac{35}{6}$ D) $\frac{143}{5}$ E) $\frac{26}{5}$

22. $\frac{-\cos 80^\circ + i \sin 80^\circ}{-\sin 280^\circ + i \cos 280^\circ} = ?$

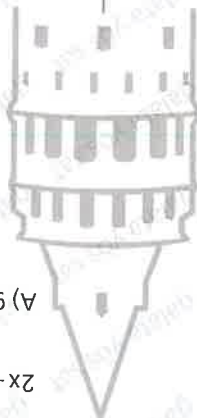
- A) $-i$ B) 1 C) i D) $1+i$ E) $2i$

26. x ve y aralarında asal iki doğal sayıdır. x and y are Coprime natural numbers.

OKEK $(x, y) = 117$

$2x + \frac{y}{9} = 27 \Rightarrow x = ?$

- A) 9 B) 11 C) 13 D) 15 E) 17



27. A, B, C kümeleri için hangisi yanlıştır ?
For sets A, B, C, which is false?

- A) $A \cap B = A \cap (B \cup C)$
B) $A \cap B = (A \cap C) \cap (B \cap C)$
C) $(A \cup C) \cap (B \cup C) = A \cap C$
D) $A \cap B = (A \cup C) \cap (B \cup C)$
E) $A \cap B = (A \cap C) \cap B$

24. $a, b, c \in Z$
 $a^b = \frac{1}{125} \Rightarrow \max(a+b) = ?$

- A) 2 B) 8 C) 16 D) 124 E) 126

- A) 9876544321 B) 111111
C) 123456789 D) 1111111111
E) 111111111111

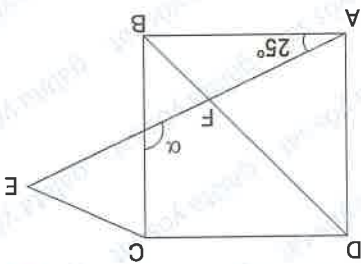
23. $\sqrt{121} = 11$
 $\sqrt{12345678987654321} = 111111$
 $\Rightarrow \sqrt{12345678987654321} = ?$

23. $\sqrt{121} = 11$

28. $3x + 1 - (3 - x) = 2(3 + 2x) - 8 \Rightarrow S.S = ?$

- A) R B) {2} C) {3} D) R - {3} E) \emptyset

1. ABCD; kare
ABCD; square
 $|BD| = |AE|$
 $m(\widehat{BAE}) = 25^\circ$
 $\alpha = ?$



- A) 100 B) 115 C) 120 D) 125 E) 130

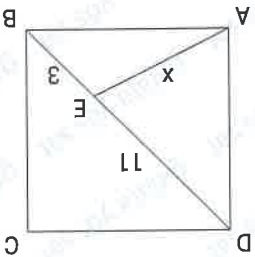
29. Dört basamaklı 2a4b sayısının / 2a4b four-digit number

- 3 ile bölümünden kalan 2 / Division with 3, remainder 2
4 ile bölümünden kalan 3 / Division with 4, remainder 3
5 ile bölümünden kalan 2 / Division with 5, remainder 2

olduğuna göre, a + b en fazla kaçtır?
what is the max a+b?

- A) 13 B) 14 C) 15 D) 16 E) 17

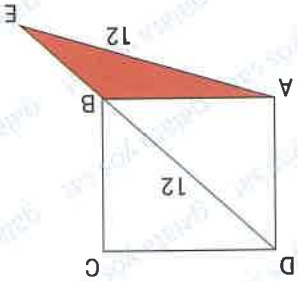
ABCD; kare
ABCD; square
 $|EB| = 3$
 $|DE| = 11$
 $|AE| = x = ?$



- A) $\sqrt{61}$ B) $\sqrt{62}$ C) $\sqrt{65}$ D) $\sqrt{66}$ E) $\sqrt{67}$

3.

ABCD; kare
ABCD; square
 $|BD| = |AE| = 12$
 $A(\widehat{ABE}) = ?$

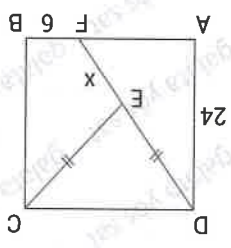


- A) 36 B) 72 C) 144 D) $144\sqrt{3}$ E) $18\sqrt{3} - 18$

30. $x \times y = 4x - 3y + 5$
 $a \Delta b = a \cdot b - a + b$
ve $8 \square 5 = 5 \Delta m \Rightarrow m = ?$

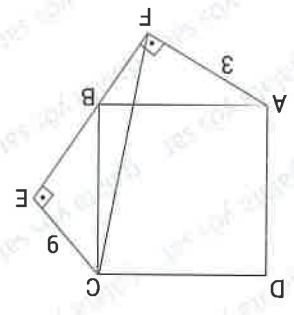
- A) $\frac{3}{10}$ B) $\frac{2}{15}$ C) $\frac{2}{9}$ D) $\frac{3}{22}$ E) $\frac{3}{16}$

6. ABCD; kare
 ABDE; square
 |DE| = |EC|
 |AD| = 24
 |FB| = 6
 |EF| = x = ?



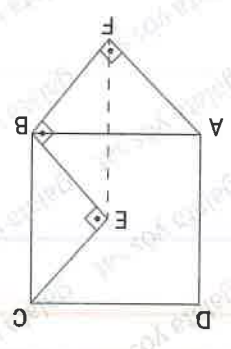
- A) 5 B) 6 C) 9 D) 10 E) 12

5. ABCD; kare
 ABCD; square
 [AF] ⊥ [EF]
 [CE] ⊥ [EF]
 |AF| = 3
 |CE| = 9
 |CF| = x = ?



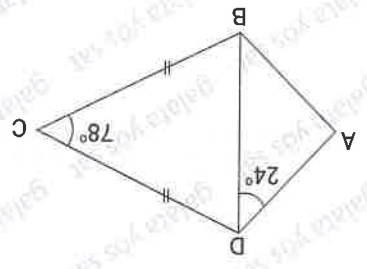
- A) 9 B) 10 C) 11 D) 12 E) 15

4. ABCD; kare
 ABCD; square
 [BE] ⊥ [CE]
 [AF] ⊥ [FB]
 [EB] ⊥ [BF]
 |EB| = 5
 |EF| = x = ?



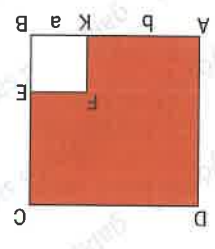
- A) $3\sqrt{2}$ B) $4\sqrt{2}$ C) $5\sqrt{2}$ D) $6\sqrt{2}$ E) $7\sqrt{2}$

9. ABCD detroid
 |CD| = |BC|
 $m(\widehat{ADB}) = 24^\circ$
 $m(\widehat{BCD}) = 78^\circ$
 $m(\widehat{ABC}) = ?$



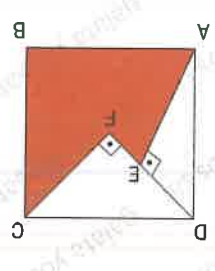
- A) 48 B) 56 C) 70 D) 75 E) 78

8. ABCD; kare / square
 KBFE; kare / square
 |KB| = a
 |AK| = b
 Taralli alan = 24
 Shaded area = 24
 $b(2a+b) = ?$



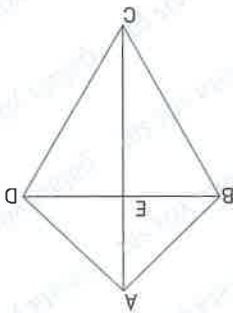
- A) 12 B) 20 C) 24 D) 28 E) 36

7. ABCD; kare
 ABCD; square
 [AE] ⊥ [DF]
 [CF] ⊥ [DF]
 $\hat{C}(ABCD) = 20$
 |CF| = 3
 Taralli alan = ?
 Shaded area = ?



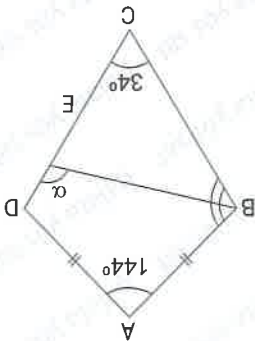
- A) 9 B) 12 C) 13 D) 14 E) 15

10. ABCD; deltoid
 $|BC| = |CD| = 34$
 $|BD| = 32$
 $|AD| = 2|DE|$
 $|AC| = ?$



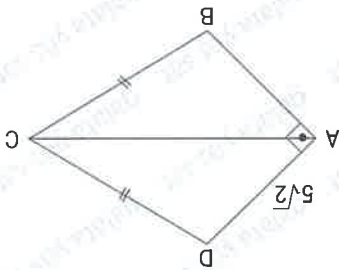
- A) $30 - 16\sqrt{3}$ B) $16\sqrt{3} + 30$ C) $30\sqrt{3} + 16$
 D) $30\sqrt{3} - 16$ E) $34\sqrt{3} - 16$

11. ABCD; deltoid
 $|AB| = |AD|$
 $m(\widehat{BAD}) = 144^\circ$
 $m(\widehat{BCD}) = 34^\circ$
 $m(\widehat{ABE}) = m(\widehat{EBC})$
 $m(\widehat{BED}) = \alpha = ?$



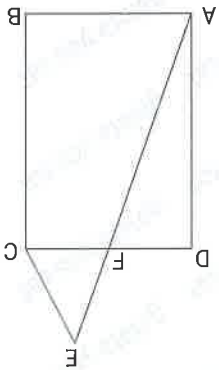
- A) 79,5 B) 80 C) 80,5 D) 84 E) 89

12. ABCD; deltoid
 $|AD| = 5\sqrt{2}$
 $|AC| = 15$
 $\widehat{C(ABCD)} = ?$



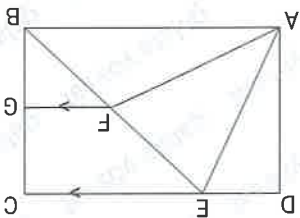
- A) $20\sqrt{2}$ B) $10\sqrt{2} + 5\sqrt{5}$ C) $10\sqrt{2} + 10\sqrt{5}$
 D) $20\sqrt{5}$ E) $10\sqrt{5} + 15\sqrt{5}$

13. ABCD dikdörtgen
 ABCD rectangüler
 $3|EF| = 2|AF|$
 $|DF| = |FC|$
 $A(\widehat{EFC}) = 12$
 $A(ABCD) = ?$



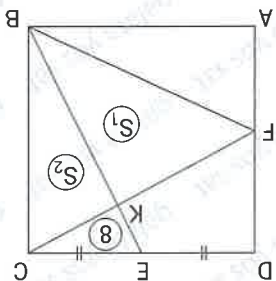
- A) 36 B) 54 C) 72 D) 74 E) 76

14. ABCD dikdörtgen
 ABCD rectangüler
 $m(\widehat{EAF}) = m(\widehat{FAB})$
 $[FG] \parallel [AB]$
 $|AB| = 3|AE|$
 $A(\widehat{FBG}) = 18$
 $A(\widehat{ECGF}) = ?$



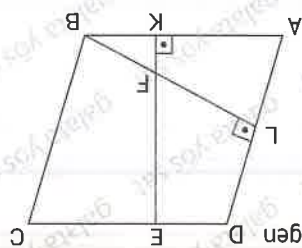
- A) 14 B) 18 C) 20 D) 24 E) 36

15. ABCD bir kare
 ABCD; square
 $|DE| = |EC|$
 $A(\widehat{EKC}) = 8$
 $A(\widehat{KBC}) = S_2$
 $A(\widehat{KBF}) = S_1$
 $S_1 - S_2 = ?$



- A) 8 B) 9 C) 10 D) 11 E) 16

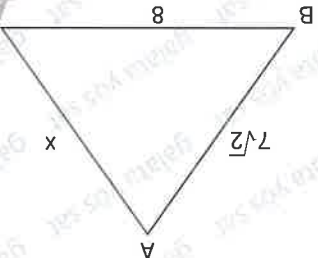
16. ABCD eşkenar dörtgen



- |EK| = ?
- |FB| = x
- |FL| = 8
- |EF| = 5 + x
- |FK| = 3x

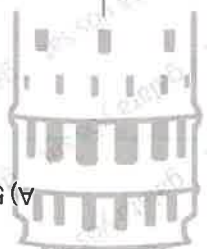
- A) 5 B) 6 C) 8 D) 9 E) 10

17. $m(\widehat{ABC}) > 45^\circ$

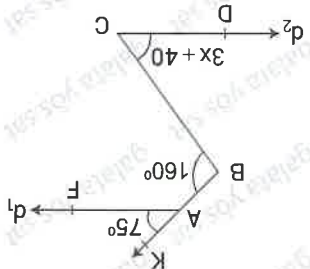


|AC| = x'in minimum tam sayı değeri kaçtır ?
What is the min integer value of |AC|=x=?

- A) 7 B) 8 C) 9 D) 10 E) 11



20. $d_1 \parallel d_2$
 $m(\widehat{KAF}) = 75^\circ$
 $m(\widehat{BCD}) = 3x + 40$
 $m(\widehat{KBC}) = 160^\circ$
 $x = ?$



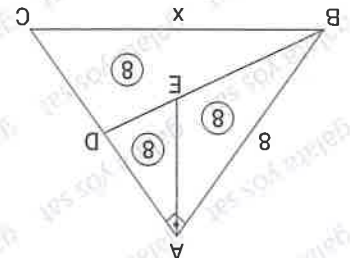
- A) 5 B) 10 C) 15 D) 20 E) 25

[BA] \perp [AC]

$A(\widehat{BAE}) = A(\widehat{EAD}) = A(\widehat{DBC}) = 8 \text{ cm}^2$

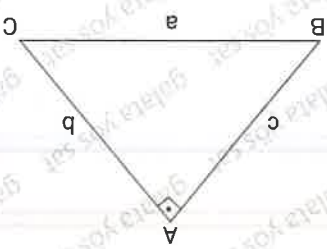
|AB| = 8 cm
|BC| = ? cm

- A) 6 B) 8 C) 10 D) 12 E) 14



18.

19. [BA] \perp [AC]



$2a^2 - b^2 - c^2 = 144$
 $a = ?$

- A) 10 B) 12 C) 13 D) 14 E) 24

Başarıya Götüren Yol

Mat	Problem 2 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem

Mat	Problem 2 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem

Mat	Problem 2 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem

Mat	Problem 2 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem

Mat	Problem 2 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem

Mat	Problem 2 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem

Mat	Problem 2 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem

Mat	Problem 2 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem

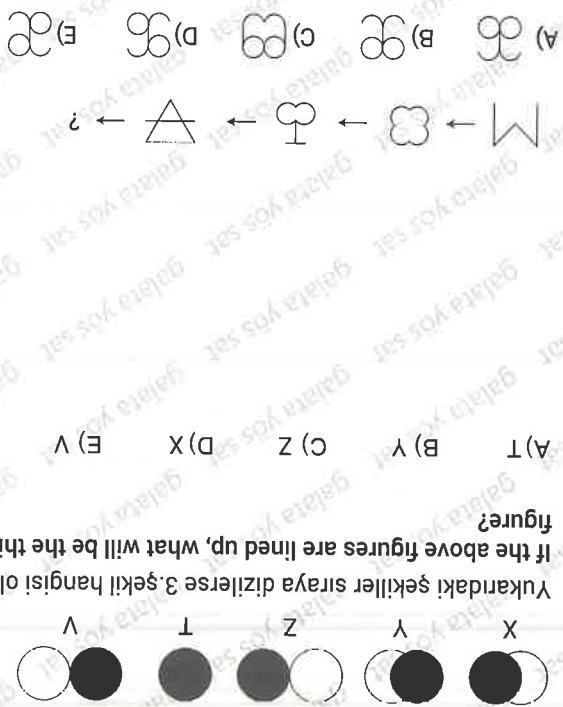
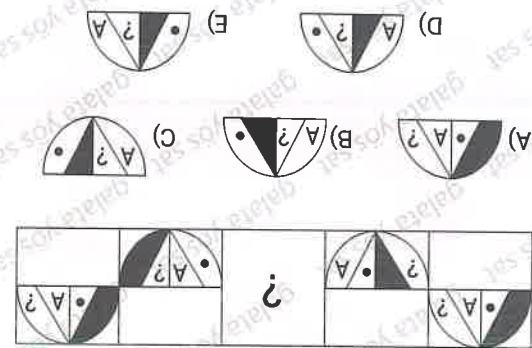
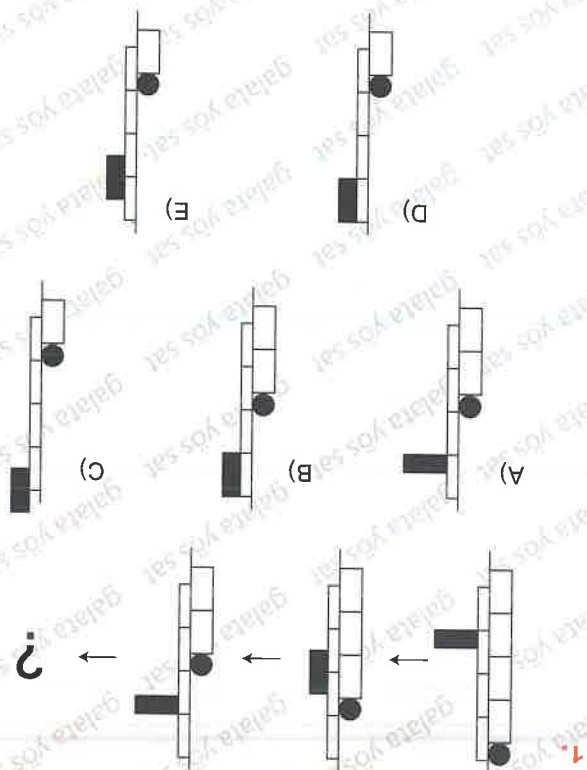
Mat	Problem 2 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem

Mat	Problem 2 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem

Mat	Problem 2 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem 1 Problems	Mat	Problem / Problem	Mat	Problem / Problem

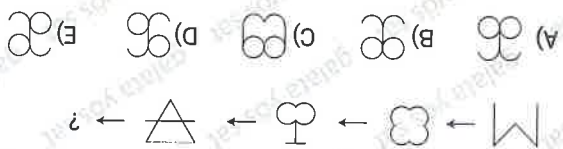
KTS-21

Mat	Logaritma Temevarim Logarithm, Induction	Mat	Özel Tanımlı Fonksiyonlar Custom Defined Functions	Mat	Limit, Süreklilik / Limit, Continuity
Mat	Sekül İkiçatli Tablo Figure Relations, Table	Mat	Sekül İkiçatli Tablo Figure Relations, Table	Mat	Sekül İkiçatli Sorular Figure Relations, Sort
Geo	Dikdörtgen / Rectangular	Geo	Kare / Square	Geo	Çemberde Aç / Angle on Circle
Mat	Karmatik Sayılar / Complex number	Mat	Trigonometri / Trigonometry	Mat	Trigonometri / Trigonometry
Geo	Yamuk / Trapezoid	Geo	Eğik Dörtgen / Rhombus	Geo	Paralelkenar II / Parallelogram II
Mat	Modüler Aritmetik Modular Arithmetic	Mat	Polinom / Polynomial	Mat	İl Dereceden Denklem Parabol Etitirlikler
Mat	Küp Sayma Tanımlama Cube Counting and Completion	Mat	Çizimler / Graphics	Mat	Çizimler / Graphics
Geo	Polygonlar / Polygons	Geo	Dörtgen / Quadrilateral	Geo	Paralelkenar I / Parallelogram I
Mat	İşlem / Operation	Mat	Kartzyen Çarpım ve Fonksiyonlar Cartesian Product and Functions	Mat	Kümeler / Sets
Mat	Denklem Eşleştirme / Equation Matching	Mat	Eşleştirme / Matching	Mat	Oranlar / Scales
Geo	Açı-yanlı İlişim / Angle-Side Relation in Triangle	Geo	Üçgenin Alanı / Area of Triangles	Geo	Üçgenin Alanı / Area of Triangles
Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers	Mat	Oran Orantı / Ratio and Proportion
Mat	Sayı Bağıntıları / Number Relations	Mat	Tablolar / Tables	Mat	Tablolar / Tables
Geo	Kemerli / Medium	Geo	Üçgenin Benzerlik Similarity in Triangles	Geo	Üçgenin Benzerlik Similarity in Triangles
Mat	Basit Eşitsizlik ve Mutlak Değer Simple Inequality and Absolute Value	Mat	Çarpım Ayrıştırma / Factorization	Mat	Kabul Sayılar / Radical Expressions
Mat	Sayı Bağıntıları / Number Relations	Mat	İşlem / Operations	Mat	İşlem / Operations
Geo	Açıortay / Bisector	Geo	İkizkenar ve Eşkenar Üçgen Isosceles and Equilateral Triangle	Geo	Dik Üçgen (Dik) / Right triangle
Mat	İşlem Üncesi ve Rasgele Sayılar Order of operations and Rational Numbers	Mat	Birinci Dereceden Denklem First-Degree Equations	Mat	Üçgenin Alanı / Area of Triangles
Mat	Sayı Bağıntıları / Number Relations	Mat	Sayı Üçgenleri / Number Patterns	Mat	Sayı Üçgenleri / Number Patterns
Geo	Açılar / Angles	Geo	Üçgenin Alanı / Area of Triangles	Geo	Dik Üçgen / Right triangle

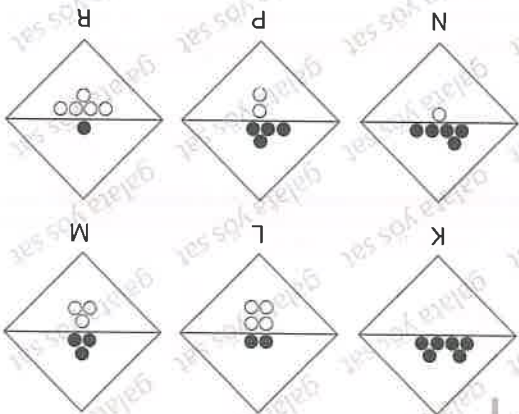


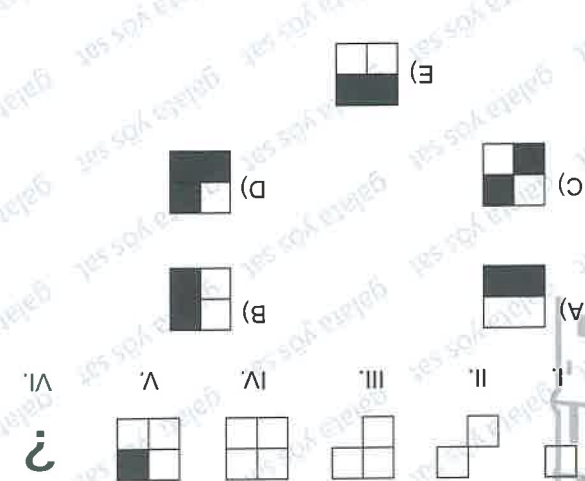
Yukarıdaki şekiller sıraya dizilirse 3. şekil hangisi olur ?
If the above figures are lined up, what will be the third figure?

- A) T B) Y C) Z D) X E) V

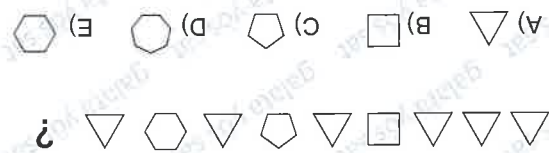


Yukarıdaki şekil sıraya konulursa son şekil K olduğuna göre 4. şekil hangisidir ?
If the above figure is put in order, since the last figure is K, which is the 4th figure?

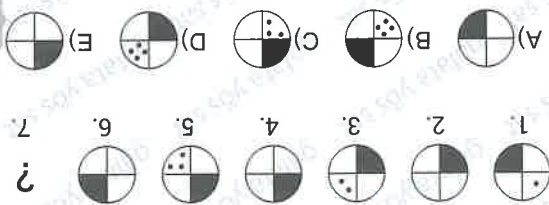




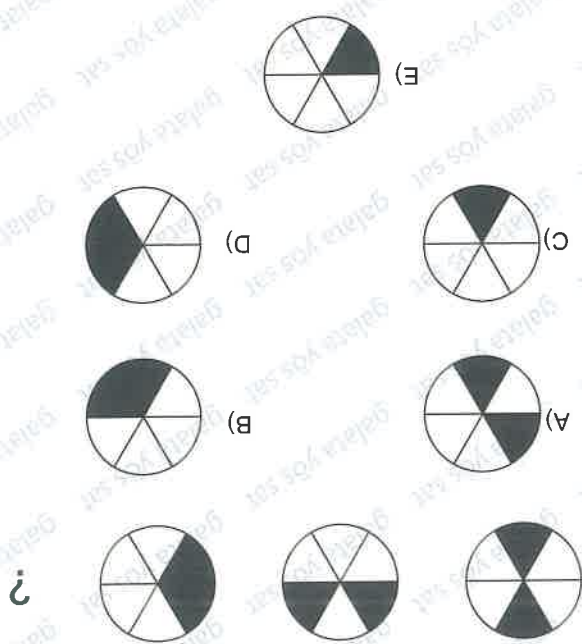
VI. ?
V.
IV.
III.
II.
I.



8.



7.



9.

Şekil dizisinin sonuna aşağıdakilerden hangisi gelmelidir?
Which of the following should come at the end of the sequence of figures?

- A) ♡ ▽ ○ □ ☆ □ ○ ▽ ♡ ○ □ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ▽ ♡ ○ □ ☆ ○ ▽
- B) ▽ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽
- C) ♡ ▽ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽
- D) ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽
- E) ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽ ♡ ○ □ ☆ ○ ▽

13. I.

∇	⊗	□	▽	□	⊗
---	---	---	---	---	---

II.

□	▽	□	⊗	□	▽
---	---	---	---	---	---

III.

□	⊗	□	▽	□	⊗
---	---	---	---	---	---

IV.

□	∇	□	⊗	□	∇
---	---	---	---	---	---

V.

?	?	?	?	?	?
---	---	---	---	---	---

A)

□	⊗	□	▽	□	∇
---	---	---	---	---	---

B)

□	⊗	□	▽	□	□
---	---	---	---	---	---

C)

⊗	□	□	▽	□	□
---	---	---	---	---	---

D)

□	⊗	□	▽	□	□
---	---	---	---	---	---

E)

□	∇	□	▽	□	∇
---	---	---	---	---	---



12.

	⇒		
	⇒		
	⇒		
	⇒		
	⇒		
	⇒		

A)

□	∇	□	∇
---	---	---	---

B)

□	∇	□	∇
---	---	---	---

C)

□	∇	□	∇
---	---	---	---

D)

□	∇	□	∇
---	---	---	---

E)

□	∇	□	∇
---	---	---	---

11.

A)

□	□	□
---	---	---

B)

□	□	□
---	---	---

C)

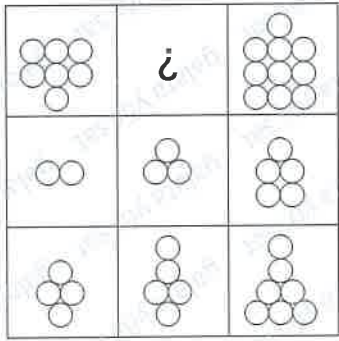
□	□	□
---	---	---

D)

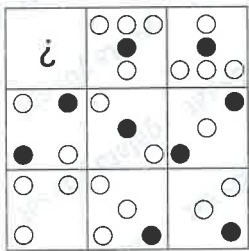
□	□	□
---	---	---

E)

□	□	□
---	---	---

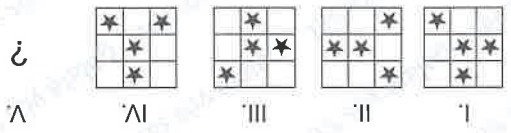


- (A)
- (B)
- (C)
- (D)
- (E)



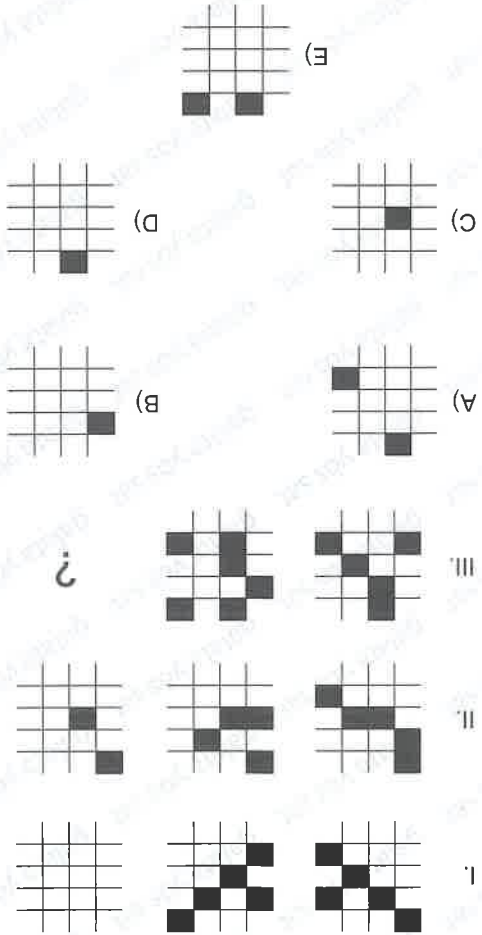
- (A)
- (B)
- (C)
- (D)
- (E)

16.



- (A)
- (B)
- (C)
- (D)
- (E)

15.

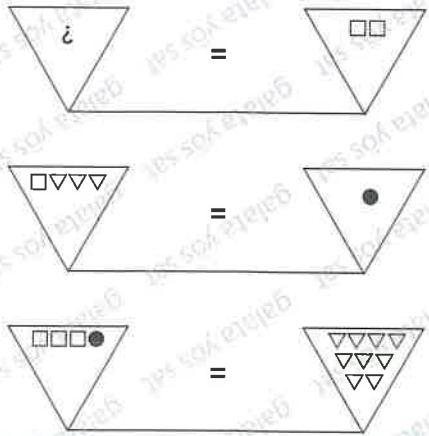


- (A)
- (B)
- (C)
- (D)
- (E)

14.

19.

Soru işaretli yere kaç tane üçgen gelir ?
 How many triangles will replace the question mark?
 A) 1 B) 2 C) 3 D) 5 E) 6



A) 5; 3 B) 4; 4 C) 4; 5 D) 6; 4 E) 5; 4

K,L = ?

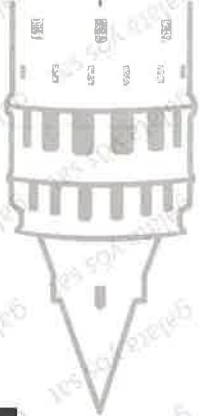
	4	3	4	5	K
3	□	⬠	▽	○	⬡
0	▽	▽	○	⬠	□
1	⬠	○	□	▽	○
6	○	□	⬡	⬠	▽
3	○	⬡	▽	□	⬠

18.

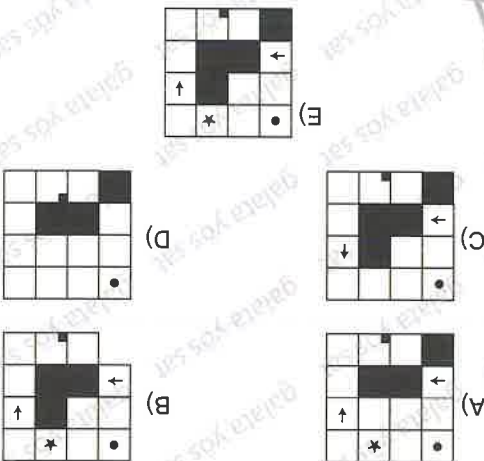
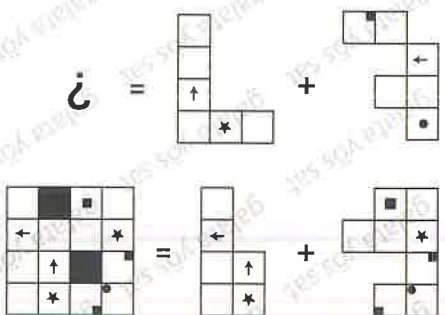
21.

6 ○ = 4 △ = 8 ◇ = □
 □ - △ = 2
 ○ - ◇ = ?

A) -3 B) 1 C) -2 D) -1 E) 2



20.



Yukarıdaki şekil matrisinin bir kurala uygun olabilmesi için hangi şekiller yer değiştirilmelidir?

Which shapes must be interchanged for the above shape matrix to conform to a rule?

IV.			
III.			
II.			
I.			
	K	L	M

- A) (I - K) ile (II - L)
 B) (III - K) ile (IV - M)
 C) (III - L) ile (IV - L)
 D) (III - M) ile (IV - M)
 E) (III - K) ile (IV - K)

24.

Taral alan = ? a²
 Shaded Area = ? a²

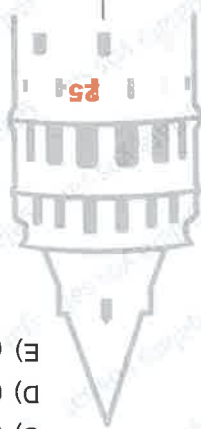
22.

- A) 110 B) 116 C) 128 D) 134 E) 145

11	10	2	?
9	10	11	12
8	9	10	7
7	8	9	10

23.

- A) 6 B) 7 C) 8 D) 9 E) 10



- A) + B) X C) N D) E) Z

JK	PN	PP	TK	BO
ML	JK	KB	DP	DP
KT	NR	JJ	PT	JP
TM	RP	PB	DK	DK
LM	NK	KJ	TP	?
KLT	PRK	BK	DK	PBJ

A) BJ B) DBP C) BJD D) PD E) JO

30. SAMİMİ
YARENLIK
GÜZELLİKTIİR

← 3,3
← 5,3
← 7,2

A) 5,3 B) 6,3 C) 6,4 D) 7,3 E) 7,4



A) 532 B) 537 C) 548 D) 550 E) 556

29. 533 366 432 464 528 ?



A) 1 B) 2 C) 3 D) 4 E) 5

7	9	6	0	3	?
2	8	3	6	8	3
15	12	12	6	6	6

28.

YÖS

KTS 21

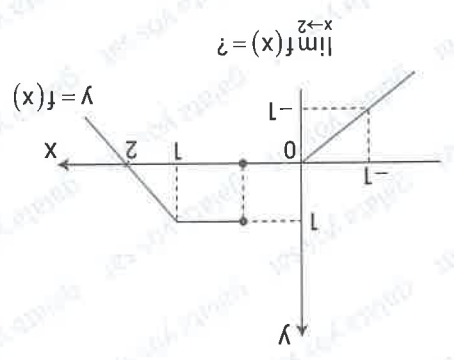
1. $f: \mathbb{R} \rightarrow \mathbb{R}$

$$f(x) = 3x - 5 \Rightarrow \lim_{x \rightarrow -1} f(x) = ?$$

- A) 2 B) 1 C) -1 D) -2 E) -8

$$2. f(x) = \begin{cases} x^2 + 1, & x < 3 \\ 7, & x = 3 \\ 3x + 1, & x > 3 \end{cases} \Rightarrow \lim_{x \rightarrow 3} f(x) = ?$$

- A) 3 B) 7 C) 8 D) 10 E) \emptyset



$$\lim_{x \rightarrow 2} f(x) = ?$$

- A) 2 B) 1 C) 0 D) -1 E) -2

3.

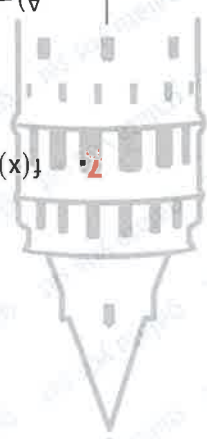
$$4. \lim_{x \rightarrow -2} (-1)^x = ?$$

- A) 2 B) 1 C) 0 D) -1 E) -2

8.

$$\lim_{x \rightarrow y} \frac{x + 2y}{3x - y} = ?$$

- A) $\frac{2}{3}$ B) 1 C) $\frac{2}{1}$ D) $\frac{1}{4}$ E) 0



2.

$$f(x) = \begin{cases} 3ax - 5, & x < -2 \\ x^2 - bx + a, & x \geq -2 \end{cases} \Rightarrow \lim_{x \rightarrow -2} f(x) = 1 \Rightarrow a \cdot b = ?$$

- A) -1 B) $-\frac{1}{2}$ C) $\frac{2}{1}$ D) 1 E) 2

6.

$$\lim_{x \rightarrow 8} (\log_4 x^2) = ?$$

- A) 0 B) $\frac{2}{1}$ C) 2 D) $\frac{2}{3}$ E) 3

5.

$$\lim_{x \rightarrow 2} \sqrt[3]{\frac{x+6}{x-1}} = ?$$

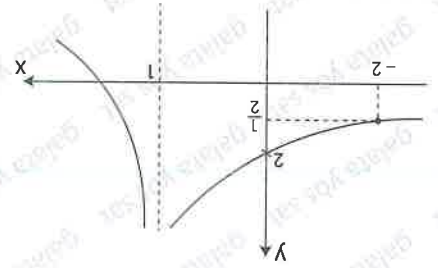
- A) 2 B) -1 C) 0 D) $\frac{2}{3}$ E) 8

9. $\lim_{x \rightarrow 0} \frac{x}{x-|x|} = ?$

- A) $\frac{1}{2}$ B) 1 C) $\frac{2}{3}$ D) 2 E) \emptyset

10. $\lim_{x \rightarrow 3} \frac{1}{x-3} = ?$

- A) $-\infty$ B) -3 C) 0 D) 3 E) ∞



Şekildeki $f(x)$ fonksiyonunun grafiğine göre aşağıda-
kilerden kaç tanesi doğrudur ?
According to the graph of the function $f(x)$ in the
figure, how many of the following are true?

- I. $\lim_{x \rightarrow 0} f(x) = +\infty$
II. $\lim_{x \rightarrow +\infty} f(x) = 0$
III. $\lim_{x \rightarrow -1} f(x) = +\infty$
IV. $\lim_{x \rightarrow -2} f(x) = \frac{1}{2}$

- A) 0 B) 1 C) 2 D) 3 E) 4

13. $\lim_{x \rightarrow \infty} \left(\frac{2x+5}{4x-1} - \frac{2x+3}{2x+3} \right) = ?$

- A) 0 B) 1 C) 2 D) $\frac{3}{8}$ E) $\frac{3}{11}$

12. $\lim_{x \rightarrow \infty} \left(2^x + \frac{2x+1}{3x-4} + 2 \right) = ?$

- A) 2 B) 4 C) e^2 D) e^3 E) e^4

14. $f(x) = \begin{cases} mx+n, & x < 1 \\ 5, & x = 1 \\ x^2+n, & x > 1 \end{cases}$

$f(x)$ fonksiyonu reel sayılar kümesinde sürekli ise n kaçtır ?
If $f(x)$ is continuous on a set of real numbers, what is n ?

- A) -2 B) -1 C) 1 D) 2 E) 4

15. $\lim_{x \rightarrow \infty} \left(\sqrt{x^2 - 4x} - x \right) = ?$

- A) -4 B) -2 C) 0 D) 2 E) 4

16. 8^8 sayısının yarısı aşağıdakilerden hangisidir ?
What is half of the number 8^8 ?

- A) 4^4 B) 4^8 C) 2^4 D) 8^4 E) 2^8

20. $a = 12$, $b = 4 \Rightarrow \frac{(a-b)^3}{(a+b)^{-2}} = ?$

- A) 1 B) 2^{12} C) 2^5 D) 2^{12} E) 2^{17}

17. $\frac{1}{1} + \frac{1}{1} + \frac{3i}{1} + \frac{4i}{1} + \frac{5i}{1} = ?$

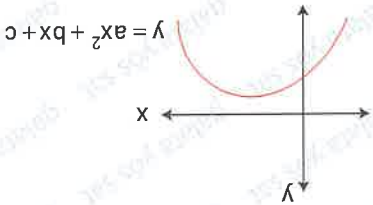
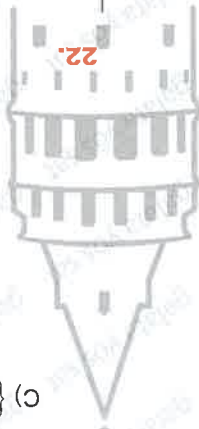
- A) 1 B) $\frac{7}{13}$ C) $\frac{23}{15}$ D) $\frac{23}{37}$ E) 3

21. $x^4 + 5x^2 - 6 = 0 \Rightarrow S.S = ?$

- A) $\{\pm 1, \pm\sqrt{6}\}$ B) $\{\pm 1, \pm\sqrt{6}\}$
C) $\{\pm 1, \pm\sqrt{6}\}$ D) $\{-1, \pm\sqrt{6}\}$
E) $\{\pm\sqrt{6}, 1\}$

18. $\frac{3,9}{4,9} + \frac{3,9}{5,9} = ?$

- A) $\frac{3}{4}$ B) $\frac{30}{41}$ C) $\frac{60}{83}$ D) $\frac{5}{7}$ E) $\frac{60}{87}$



Şekilde grafiği verilen parabolde göre, aşağıdakilerden hangisi doğrudur ?
According to the parabola graphed in the figure, which of the following is true?

- A) $4 \cdot a \cdot c - b^2 < 0$ B) $a \cdot b \cdot c > 0$
C) $a \cdot c < 0$ D) $a \cdot b > 0$
E) $b \cdot c > 0$

19. $\frac{3}{2} + \frac{3}{4} = ? \pmod{7}$

- A) 1 B) 2 C) 3 D) 4 E) 5

23. $\cos^2 \frac{\pi}{8} + \cos^2 \frac{3\pi}{8} = ?$

- A) 1 B) $\frac{\sqrt{2}}{2}$ C) $\sqrt{3}$ D) $2\sqrt{3}$ E) 5

27. $\sum_{k=1}^{10} (2k+1) = ?$

- A) 100 B) 110 C) 120 D) 130 E) 140

24. $g(x) = x^2 - 2x$ olmak üzere

$(f \circ g)(x) \geq 4$ şartını sağlayan

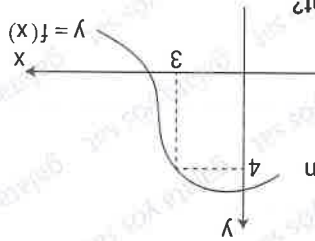
x tam sayılarının toplamı

kaçtır ?

What is the sum of the

integers x that satisfy

the $(f \circ g)(x) \geq 4$ requirement?



28. x, y birer tam sayıdır. Buna göre $|x| + |y| = 8$ eşitliğini

saglayan kaç farklı (x,y) ikilisi vardır ?

x, y are integers. Accordingly, how many different pairs

(x, y) are there that satisfy $|x| + |y| = 8$?

- A) 12 B) 16 C) 32 D) 36 E) 40

- A) -12 B) -4 C) -1 D) 5 E) 6

25. $8 \tan x = 3 \cos x \Rightarrow \sin x = ?$

- A) $\frac{3}{1}$ B) $\frac{1}{2}$ C) 1 D) $\frac{2}{3}$ E) $\frac{4}{3}$

29. $f: (0, \infty) \rightarrow (-\infty, 1)$

$f(x) = 1 - \frac{x^2}{2} = f^{-1}(-7) + f(2) = ?$

- A) $-\frac{3}{2}$ B) $-\frac{1}{2}$ C) $\frac{2}{1}$ D) 1 E) $\frac{2}{3}$

26. $\log_2 16 - \log_5 \frac{5}{1} + \log \sqrt{2} = ?$

- A) 5 B) 10 C) 15 D) 20 E) 25

30. $f: \mathbb{R} \rightarrow \mathbb{R}$

$f(x) = 2x + 1 + f(x+1)$

$f(4) = 2 \Rightarrow f(12) = ?$

- A) -126 B) -120 C) -110 D) -100 E) 15

4. BC : çaplı yarım çemberde $m(\widehat{ADO}) = 16^\circ$
 $m(\widehat{ACB}) = \alpha = ?$
 $|BD| = |OC|$

A) 32 B) 40 C) 44 D) 48 E) 58

5. O merkezli ABC çemberde $m(\widehat{BAC}) = 20^\circ$
 $m(\widehat{ACO}) = 38^\circ$
 $m(\widehat{ACB}) = \alpha = ?$

A) 30 B) 32 C) 34 D) 38 E) 40

6. $m(\widehat{ADB}) = 20^\circ$
 $m(\widehat{BEC}) = 100^\circ$
 $m(\widehat{CDF}) = x = ?$

A) 40 B) 50 C) 60 D) 70 E) 80

1. BC : çaplı yarım çemberde $m(\widehat{BCA}) = 48^\circ$
 $\alpha = ?$

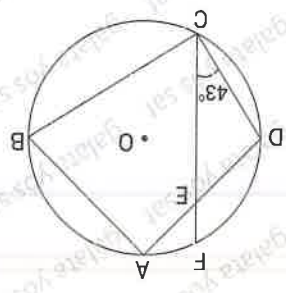
A) 64 B) 65 C) 67 D) 68 E) 69

2. AB : çaplı çemberde $|AC| = |DE|$
 $|CD| = |BE|$
 $\alpha = ?$

A) 120 B) 130 C) 135 D) 140 E) 160

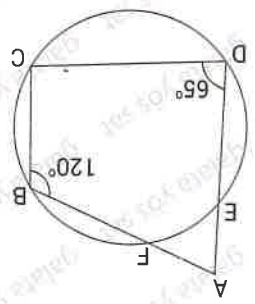
3. $|AB| = |BC|$
 a'nın x cinsinden değeri nedir?
 what is A in terms of x?

A) x B) 2x C) 3x D) 4x E) 5x



7. O merkez çember
O center circle
 $|DE| = |DC|$
 $m(\widehat{DCF}) = 43^\circ$
 $m(\widehat{ABC}) = ?$

- A) 86 B) 90 C) 94 D) 96 E) 100



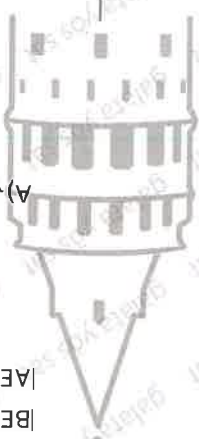
8. $[AD] \parallel [BC]$
 $m(\widehat{ABC}) = 120^\circ$
 $m(\widehat{ADC}) = 65^\circ$
 $m(\widehat{BCD}) = ?$

- A) 120 B) 130 C) 160 D) 170 E) 190

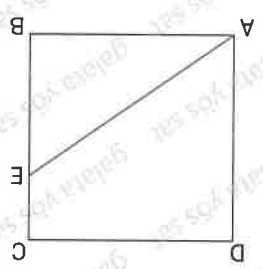
9. ABCDEF düzgün altigen
ABCDEF regular hexagon
 $m(\widehat{CDK}) + m(\widehat{EK}) = ?$



- A) 100 B) 120 C) 140 D) 200 E) 240

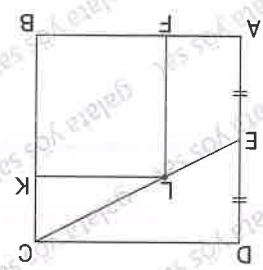


11. ABCD kare
ABCD square
 $|BE| = 4 |EC| = 4$
 $|AE| = ?$



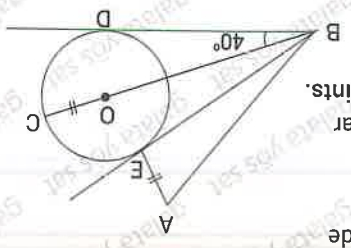
- A) $\sqrt{40}$ B) $\sqrt{41}$ C) $\sqrt{42}$ D) $\sqrt{43}$ E) $2\sqrt{3}$

12. ABCD kare/square
FBKL kare/square
 $|DE| = |EA|$
 $|LK| = 8$
 $A(ABCD) = ?$



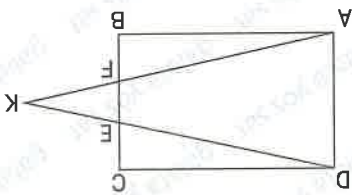
- A) 144 B) 120 C) 100 D) 96 E) 81

10. O merkezli çemberde
O center
 $|AE| = |OC|$
E ve D teğet noktalar
E and D tangent points.
 $m(\widehat{BC}) = 40^\circ$
 $m(\widehat{EC}) = ?$



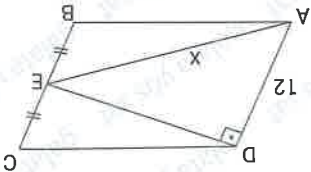
- A) 100 B) 120 C) 130 D) 140 E) 150

13. ABCD dikdörtgen
 $\frac{A(AFED)}{3} = \frac{A(ABCD)}{5}$
 $|EK| = \frac{2}{3}$
 $|DE| = ?$



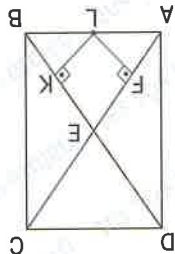
- A) 4 B) 5 C) 6 D) 9 E) 12

16. ABCD bir eşkenar dörtgen
 ABCD is a rhombus
 $|BE| = |EC|$
 $[AD] \perp [DE]$
 $|AD| = 12$
 $|AE| = x = ?$



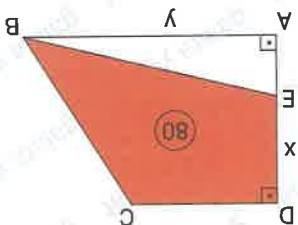
- A) $6\sqrt{7}$ B) $6\sqrt{6}$ C) $6\sqrt{5}$ D) $6\sqrt{3}$ E) $6\sqrt{2}$

14. ABCD dikdörtgen
 $|AE| = 8$
 $|FL| = a$
 $|KL| = b$
 $A(ABCD) = 64$
 $a + b = ?$



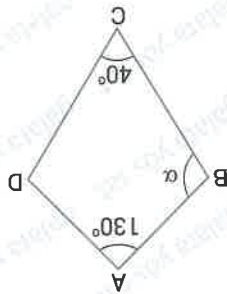
- A) 4 B) 5 C) 6 D) 8 E) 9

17. ABCD dik yamuk
 ABCD right trapezoid
 $DEBC$ deltoid
 $|DE| = |DC| = x$
 $|AB| = y$
 $A(CDEB) = 80$
 $x \cdot y = ?$



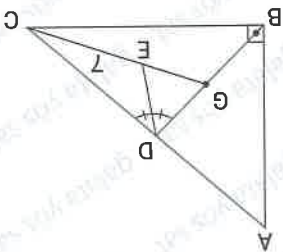
- A) 20 B) 40 C) 80 D) 100 E) 160

15. ABCD deltoid
 $m(\widehat{BAD}) = 130^\circ$
 $m(\widehat{BCD}) = 40^\circ$
 $m(\widehat{ABC}) = \alpha$

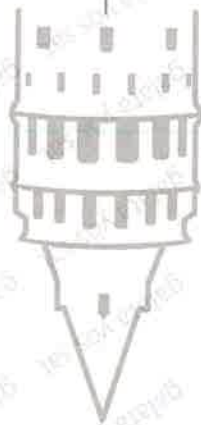


- A) 80 B) 85 C) 90 D) 95 E) 100

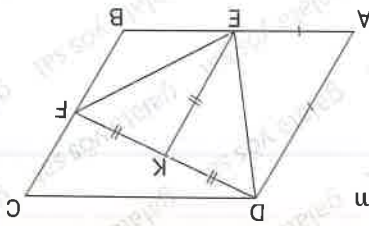
18. $[AB] \perp [BC]$
 G : ağırlık merkezi
 G : center of gravity
 $[DE]$: ağırlı tay
 $[DE]$: bisector
 $|EC| = 7$
 $|GE| = ?$



- A) 2 B) $\frac{2}{7}$ C) $\frac{3}{7}$ D) 4 E) $\frac{9}{2}$



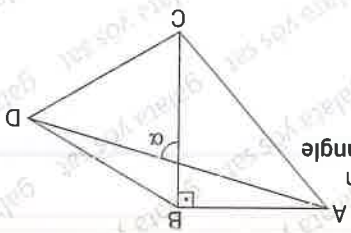
19. ABCD parallelenar



- $|AD| = |AE|$
- $|DK| = |KF| = |EK|$
- $|AD| = 8$
- $|CF| = 3$
- $\angle(ABCD) = ?$

- A) 21
- B) 28
- C) 40
- D) 42
- E) 44

20. $[AB] \perp [BC]$



BCD eşkenar üçgen
BCD equilateral triangle

$|AB| = |BC|$

$\alpha = ?$

- A) 45
- B) 60
- C) 70
- D) 75
- E) 80

Başarıya Götüren Yol

Mat	Problem / Problem	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem / Problem	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem / Problem	Mat	Problem / Problem	Mat	Problem / Problem

Mat	Problem / Problem	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem / Problem	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem / Problem	Mat	Problem / Problem	Mat	Problem / Problem

Mat	Problem / Problem	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem / Problem	Mat	Problem / Problem	Mat	Problem / Problem
Mat	Problem / Problem	Mat	Problem / Problem	Mat	Problem / Problem

Mat	Limit, Süreklilik / Limit Continuity	Geo	Çemberde Açık / Angle on Circle
Mat	Logaritma, İndüksiyon	Geo	Çemberde Uzunluk / Circle Length
Mat	Logaritma, İndüksiyon	Geo	Çemberde Uzunluk / Circle Length

Mat	Karmaşık Sayılar / Complex numbers	Geo	Yamuk / Trapezoid
Mat	Sabit İlgili Tamamlayıcı Şekil İlgili Tamamlayıcı	Geo	Çember - Alan / Environment - Area
Mat	Sabit İlgili Tamamlayıcı Şekil İlgili Tamamlayıcı	Geo	Çember - Alan / Environment - Area

Mat	Modüler Aritmetik	Geo	Paralelkenar I. / Parallelogram I
Mat	Küp Sayma Tamamlayıcı	Geo	Çokgenler / Polygons
Mat	Küp Sayma Tamamlayıcı	Geo	Çokgenler / Polygons

Mat	İşlem / Operation	Geo	Üçgenin Açık Kenar Başlangıç
Mat	Denklemler Eşleştirmesi / Equation Matching	Geo	Üçgenin Açık Kenar Başlangıç
Mat	Denklemler Eşleştirmesi / Equation Matching	Geo	Üçgenin Açık Kenar Başlangıç

Mat	Doğal Sayılar / Natural numbers	Geo	Benzerlik / Similarity
Mat	Sayı Bağlantıları / Number Relations	Geo	Üçgenin Benzerlik
Mat	Sayı Bağlantıları / Number Relations	Geo	Üçgenin Benzerlik

Mat	Basit Eşitsizlik ve Mutlak Değer	Geo	Üçgenin Açık Kenar Başlangıç
Mat	Basit Eşitsizlik ve Mutlak Değer	Geo	Üçgenin Açık Kenar Başlangıç
Mat	Basit Eşitsizlik ve Mutlak Değer	Geo	Üçgenin Açık Kenar Başlangıç

Mat	İşlem Döngesi ve Rasyonel Sayılar	Geo	Üçgenin Açık Kenar Başlangıç
Mat	İşlem Döngesi ve Rasyonel Sayılar	Geo	Üçgenin Açık Kenar Başlangıç
Mat	İşlem Döngesi ve Rasyonel Sayılar	Geo	Üçgenin Açık Kenar Başlangıç

KTS-22

2

I II III V

A) B) C) D) E)

A) B) C) D) E)

3

I II III IV

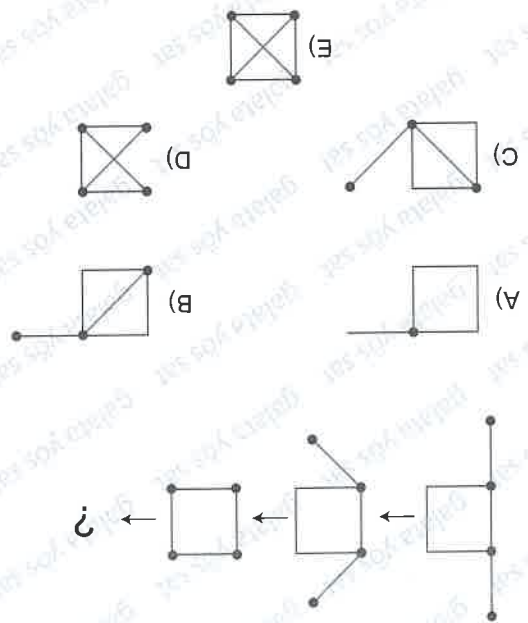
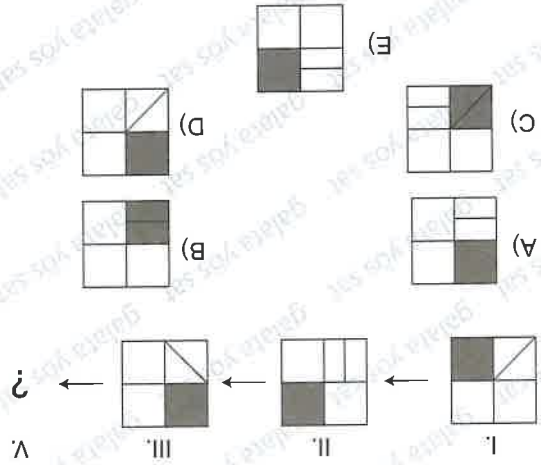
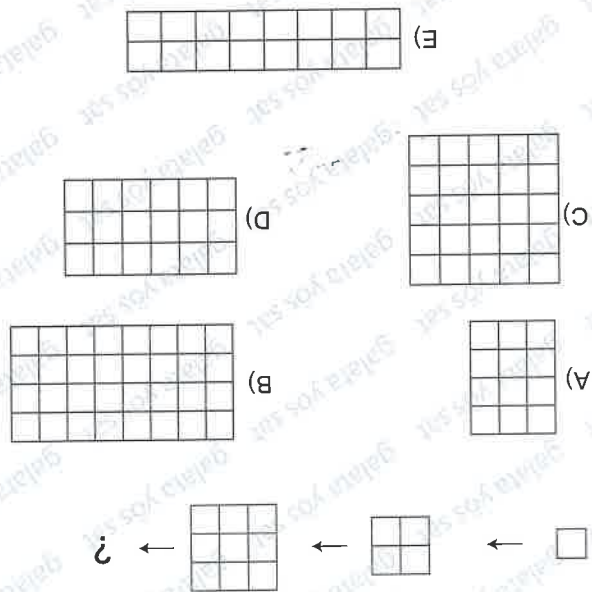
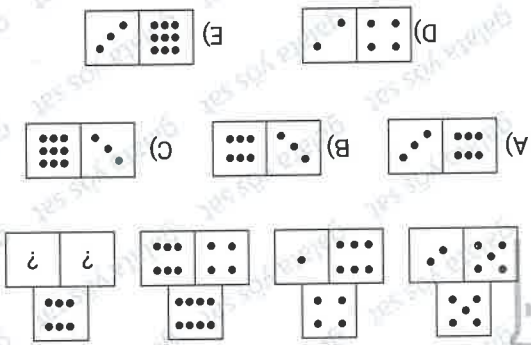
A) B) C) D) E)

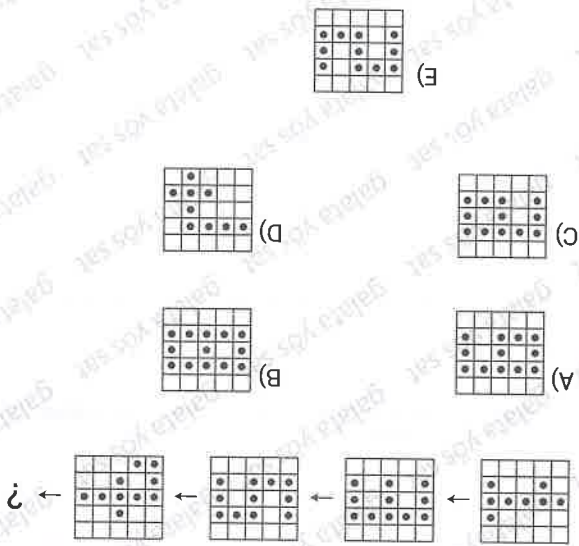
A) B) C) D) E)

4

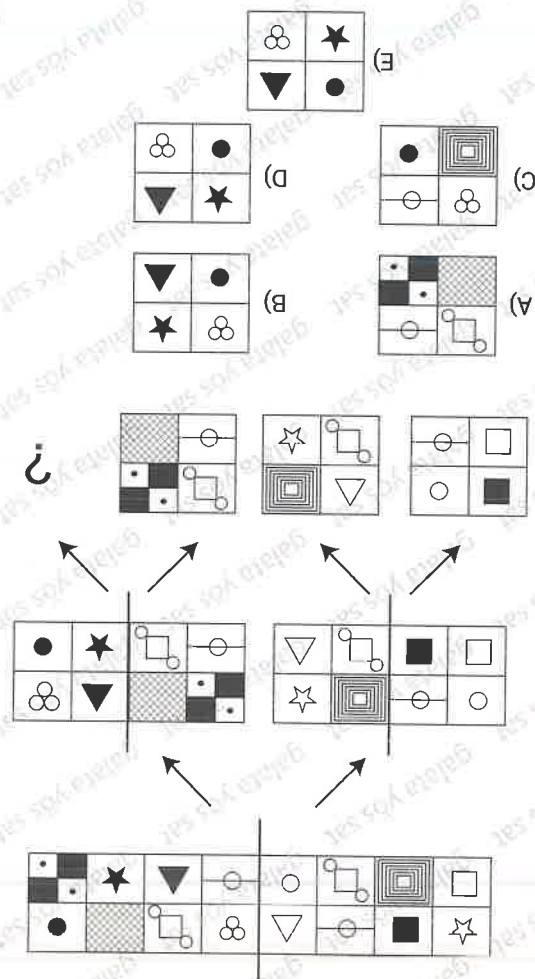
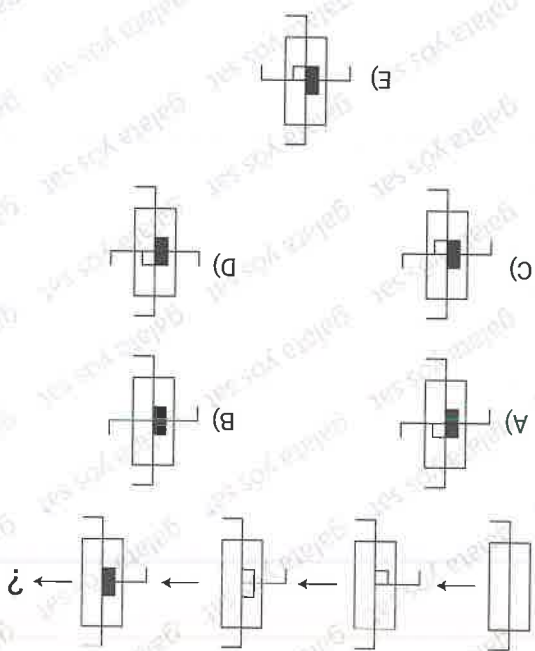
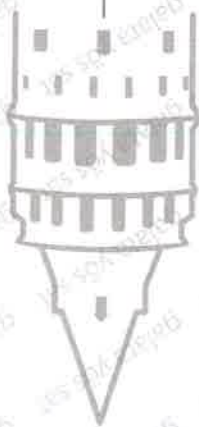
I II III V

A) B) C) D) E)



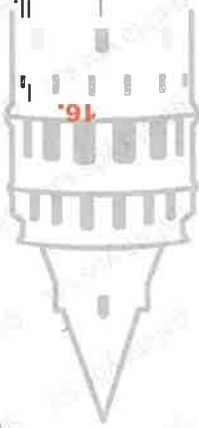


10. ? ← A) ← B) ← C) ← D) ← E)



- E) S G T Y L Q
- D) T S Q Y L G
- C) S T Q Y L G
- B) T S L Y Q G
- A) T L Q Y S G

- Y ?
- III. S Q G Y T L
 - II. Q G L Y S T
 - I. G L T Y Q S

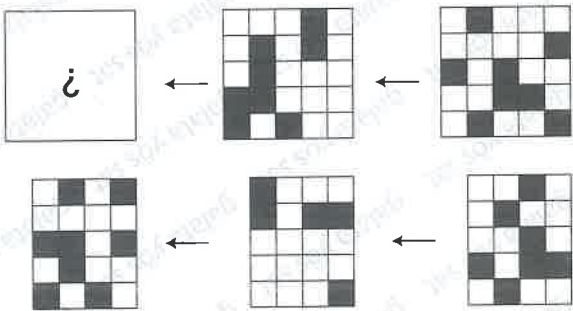


- E) [Diagonal lines] [Arrow] [Curve] [Y-shape] [X-shape] [Triangle] [Inverted Triangle] [Star]
- D) [Diagonal lines] [Curve] [Arrow] [Y-shape] [Star] [Triangle] [Inverted Triangle] [X-shape]
- C) [Diagonal lines] [Curve] [Arrow] [Star] [Inverted Triangle] [Triangle] [Y-shape] [X-shape]
- B) [Diagonal lines] [Curve] [Arrow] [Triangle] [Star] [Y-shape] [Inverted Triangle] [X-shape]
- A) [Diagonal lines] [Arrow] [Curve] [Y-shape] [Star] [Triangle] [Inverted Triangle] [X-shape]

- Y ?
- III. [Flower] [Vertical lines] [X-shape] [Leaf] [Wavy lines] [Star] [Dot] [Hash]
 - II. [Inverted Triangle] [Y-shape] [Triangle] [Star] [X-shape] [Diagonal lines] [Curve] [Arrow]
 - I. [Star] [Dot] [Hash] [Flower] [Leaf] [Wavy lines] [X-shape] [Vertical lines]

14. I.

- E) [4x4 grid with black squares at (1,1), (1,2), (1,3), (2,4), (3,1), (3,2), (3,3), (4,4)]
- D) [4x4 grid with black squares at (1,2), (1,3), (2,1), (2,2), (2,3), (3,4), (4,1), (4,2), (4,3)]
- C) [4x4 grid with black squares at (1,1), (1,2), (1,3), (2,4), (3,1), (3,2), (3,3), (4,4)]
- B) [4x4 grid with black squares at (1,1), (1,2), (1,3), (2,4), (3,1), (3,2), (3,3), (4,4)]
- A) [4x4 grid with black squares at (1,1), (1,2), (1,3), (2,4), (3,1), (3,2), (3,3), (4,4)]



15.

- E) [4x4 grid with black squares at (1,1), (1,2), (1,3), (2,4), (3,1), (3,2), (3,3), (4,4)]
- D) [4x4 grid with black squares at (1,1), (1,2), (1,3), (2,4), (3,1), (3,2), (3,3), (4,4)]
- C) [4x4 grid with black squares at (1,1), (1,2), (1,3), (2,4), (3,1), (3,2), (3,3), (4,4)]
- B) [4x4 grid with black squares at (1,1), (1,2), (1,3), (2,4), (3,1), (3,2), (3,3), (4,4)]
- A) [4x4 grid with black squares at (1,1), (1,2), (1,3), (2,4), (3,1), (3,2), (3,3), (4,4)]

13.

17. $\square - a \quad \blacktriangle - 1 \quad \star - 2 \quad b - a$
 $\Rightarrow \quad \bullet - 2 \quad b - a$

$\Rightarrow \quad \bullet - \bullet \quad \square - \square \quad \blacktriangle - \blacktriangle \quad \star - \star$
 $\Rightarrow \quad \bullet - \bullet \quad \square - \square \quad \blacktriangle - \blacktriangle \quad \star - \star$

A) $\square - 2 \times \square \quad \blacktriangle - \bullet \quad \star - \bullet$
 B) $\square - 2 \times \square \quad \blacktriangle - \bullet \quad \star - \bullet$

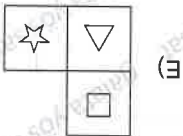
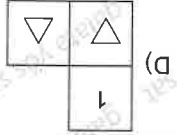
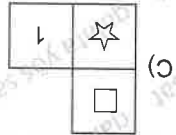
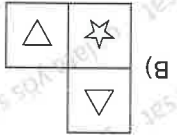
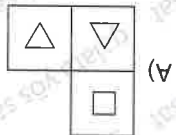
C) $\square - 2 \times \square \quad \blacktriangle - \bullet \quad \star - \bullet$
 D) $\square - 2 \times \square \quad \blacktriangle - \bullet \quad \star - \bullet$

E) $\square - 2 \times \square \quad \blacktriangle - \bullet \quad \star - \bullet$

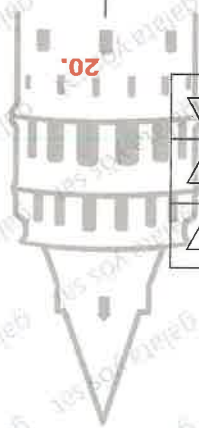
18.

A	B	A	E
B	A	B	E
C	D	C	D

\square	\blacktriangle	\star	\square
\blacktriangle	\star	\square	\blacktriangle
\star	\square	\blacktriangle	\star



20.



\square	\square	\square	\square	\square	\square
\square	\square	\square	\square	\square	\square
\square	\square	\square	\square	\square	\square
\square	\square	\square	\square	\square	\square
\square	\square	\square	\square	\square	\square
\square	\square	\square	\square	\square	\square

Yukarıdaki tabloda \star işleminin kuralları verilmiştir. Buna göre soru işaretinin yerine hangi şekil gelmelidir?
 According to the rules of \star operation established in the table above, Accordingly, which shape should replace the question mark?

- A) \blacktriangle B) \square C) \square D) \square E) \square

[[\square \star \blacktriangle \square]] \star [\square \blacktriangle \square]] \star [\square \blacktriangle \square]] \star \square = ?

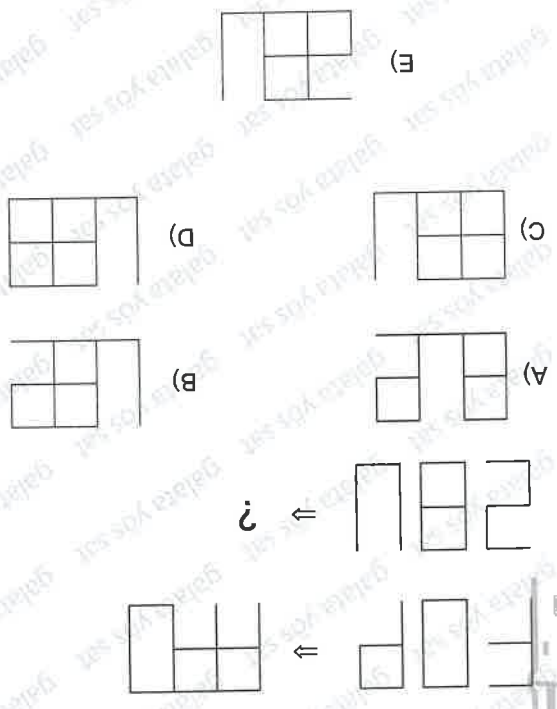
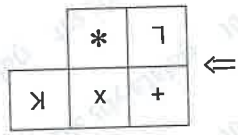
- A) B) C) D) E)

19.

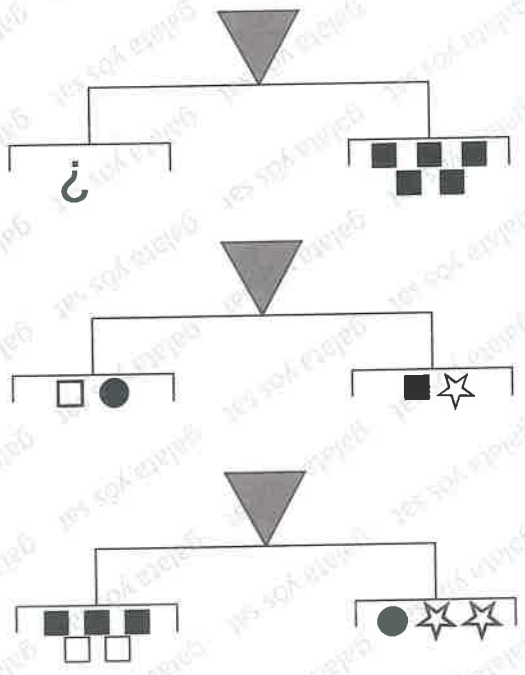
- A) $\frac{*}{L}$
- B) $* +$
- C) $\times \times$
- D) $\times *$
- E) $+ \odot$

x	\times	+	\odot	*
+	x	x	\times	\odot
\odot	+	x	*	\times
*	\odot	\times	x	+
\times	*	\odot	-	x

23.

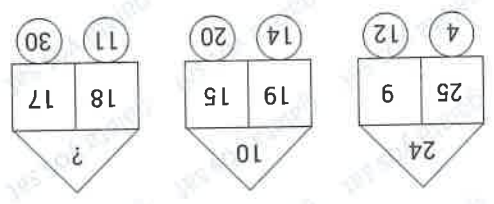


- A) $\blacksquare \bullet$
- B) $\square \star$
- C) $\bullet \bullet \bullet$
- D) $\bullet \star \star$
- E) $\star \blacksquare \bullet$



24.

- A) 22
- B) 21
- C) 20
- D) 19
- E) 18



22.

- A) 95
- B) 96
- C) 165
- D) 120
- E) 85

$\Rightarrow C - A + B = ?$

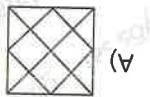
- I. 4 5 9 18 A 59
- II. 1 2 3 5 B 13
- III. 2 5 14 41 C 365

21.

26.


 \times \rightarrow
 $+$ \rightarrow

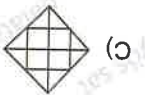
?



A)



B)



C)



D)



E)

27.

k+l			
	l	k	
l			k

 \Rightarrow

p			q
	3	4	
			s

$$\frac{p-s}{p+r} = ?$$

- A) -29 B) -28 C) -27 D) -26 E) -25

28. 29. ve 30. sorular tabloya göre cevaplandırılacaktır. Questions 28 and 29 and 30 will be answered according to the table.

Aşağıdaki tabloda bir malın yıllara göre birim alış ve birim satış fiyatları verilmiştir. The table below shows the unit purchase and sale prices of a good over the years.

Yıl	Birim Alış fiyatı Unit Purchase price	Birim Satış fiyatı Unit Sale price
2016	6.000	8.000
2017	7.000	10.000
2018	8.000	11.500
2019	9.000	10.200
2020	10.000	11.600

Buna göre, 2016 yılında kaç birim mal satılmıştır ? Accordingly, how many units of goods were sold in 2016 ?

2016 yılında satılan mallardan elde edilen toplam parayla 2017 yılında 4000 birim mal alınmıştır. 4000 units of goods were purchased in 2017 with the total money obtained from goods sold in 2016.

- A) 3200 B) 3500 C) 4200 D) 4500 E) 5000

29. 2020 yılında, alış fiyatı üzerinden 7 milyon TL(7.000.000) kar elde edilebilmesi için kaç birim mal satılmalıdır ?
In 2020, how many units of goods should be sold in order to make a profit of 7 million TL (7,000,000) over the purchase price ?

A) 3750 B) 4125 C) 4275 D) 4375 E) 4575

30. Alış fiyatı üzerinden en yüksek kar oranı hangi yılda yapılmıştır ?
What year is the highest rate of profit over the Bid/Purchase Price?

A) 2016 B) 2017 C) 2018 D) 2010 E) 2020

2.

$$f(x) = (2x + 1)(3x + 2) \Rightarrow f'(x) = ?$$

A) $6x + 7$
B) $6x + 5$
C) $12x + 3$
D) $12x + 2$
E) $12x + 7$

3.

$$f(x) = x^5 + 3 \Rightarrow f'(x) = ?$$

A) $5x^4 + 3$
B) x^5
C) $x^4 + 3$
D) $5x^4$
E) $20x^3$

4.

$$f(x) = \frac{x^2 + 2x - 1}{x^2 + 2x + 1} \Rightarrow f'(1) = ?$$

A) $\frac{1}{4}$
B) $\frac{1}{2}$
C) 0
D) 1
E) 2

5.

$$f(x) = x \cdot \sqrt[3]{x} \Rightarrow f'(1) = ?$$

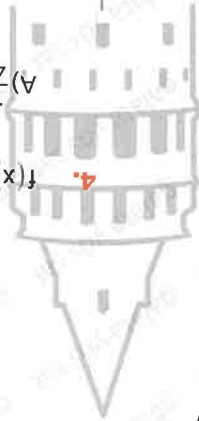
A) $\frac{12}{5}$
B) $\frac{8}{3}$
C) $\frac{24}{5}$
D) $\frac{24}{7}$
E) $\frac{12}{7}$

1.

$$f(x) = x^2 + 11x$$

$$\lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h} = ?$$

A) $2x + 11$
B) $2x$
C) $2x + 1$
D) $x + 11$
E) $x + 10$



6. $f(x) = \begin{cases} 3x^2 - 2, & x < 2 \\ x^3 + 2, & x \geq 2 \end{cases}$

- A) 4 B) 6 C) 0 D) 12 E) \emptyset

$\Rightarrow f'(1) = ?$

7. $f(x) = 2x^2 + 3\cos x + \tan x$

$\Rightarrow f'(0) = ?$

- A) 1 B) 4 C) 5 D) 3 E) 0

8. $y = 2^{\sin x} \Rightarrow y' = ?$

- A) $2^{\cos x} \ln 2$ B) $2^{\sin x} \ln 2$ C) $\cos x \cdot 2^{\sin x} \cdot \ln 2$ D) $\cos x \cdot \ln 2$ E) $2^{\sin x} \cdot \cos x$

9. $y = \cos(\ln x) \Rightarrow y' = ?$

- A) $-\sin(\ln x)$ B) $\sin(\ln x)$ C) $-\frac{\sin(\ln x)}{x}$ D) $\frac{\sin(\ln x)}{x}$ E) $-\frac{2 \cos(\ln x)}{x}$

13. $y = \ln\left(\frac{1 - \sin^2 x}{\sin 2x}\right) + \ln\left(\frac{\tan x}{\cos x}\right)$

- A) $4\sqrt{3}$ B) $7\sqrt{3}$ C) $2\sqrt{3}$ D) $4\sqrt{3}$ E) $\sqrt{3}$

$\Rightarrow \frac{dy}{dx} \Big|_{x=\frac{\pi}{3}} = ?$



12. $y = x^3 \cdot e^{x^2} \Rightarrow e^{-x^2} \cdot \frac{dy}{dx} \Big|_{x=2} = ?$

- A) 42 B) 44 C) 46 D) 48 E) 50

11. P(x) is a polynomial function. $P(x) + P'(x) = x^2 - 4x - 3$

$\Rightarrow P(2) = ?$

- A) -5 B) -4 C) -3 D) -2 E) -1

10. $f(5x - 4) = \tan\left(\frac{\pi}{4} - x\right) \Rightarrow f'(-4) = ?$

- A) $\frac{5}{2}$ B) $\frac{5}{3}$ C) $-\frac{3}{1}$ D) $\frac{3}{1}$ E) $-\frac{5}{2}$

14. $f(x) = \log_3(x-3) \Rightarrow g(x) = \frac{d}{dx} f^{-1}(x) = ?$

- A) $3^x \ln 3$ B) $3^x \log 3$ C) $3^x \log_3 10$
 D) $\frac{\ln 3}{3^x}$ E) $3^x + 3$

15. $x > \frac{1}{4}$, $f(x) = \ln(4x-1) \Rightarrow (f^{-1})'(1) = ?$

- A) $2e$ B) e C) $\frac{4}{e}$ D) $\frac{6}{e}$ E) $\frac{8}{e}$

16. $f(x) = \ln x \Rightarrow f^{(10)}(x) = ?$

- A) $\frac{x^{10}}{10!}$ B) $\frac{x^9}{10!}$ C) $-\frac{x^9}{9!}$ D) $-\frac{x^9}{10!}$ E) $\frac{x^{10}}{-9!}$

17. $\frac{(10i)^2 - (9i)^2}{z} = ?$

- A) $\frac{11}{9}$ B) $\frac{101}{19}$ C) $\frac{181}{19}$ D) $\frac{121}{81}$ E) $\frac{101}{99}$

20. $\frac{2m}{3n}$ sayısı $\frac{3m}{2n}$ sayısının kaç katidir ?

- A) $\frac{n}{m}$ B) $\frac{n^2}{m^2}$ C) $\frac{9}{4}$ D) $\frac{n^2}{m^2}$ E) $\frac{9m^2}{4n^2}$

How many times the number $\frac{3m}{2n}$ is the number $\frac{2m}{3n}$?

21. $x, y \in \mathbb{R}$

$3 < x \leq 10$ $2 < y < 5$ $\Rightarrow \frac{x \cdot y}{x+y} = ?$

- A) $\left[\frac{10}{3}, \frac{6}{5}\right]$ B) $\left(\frac{10}{3}, \frac{6}{5}\right)$ C) $\left(\frac{3}{5}, \frac{6}{5}\right)$
 D) $\left[\frac{1}{5}, \frac{6}{5}\right]$ E) $\left(\frac{1}{5}, \frac{6}{5}\right)$

19. 13! sayısı aşağıdakilerden hangisi ile tam olarak bölünemez ?

- A) 9 B) 11 C) 13 D) 26 E) 34

13! can not be divided exactly by which of the following?

18. Üç basamaklı en küçük asal sayı ile iki basamaklı en büyük çift tam sayının toplamı kaçtır ?
 What is the sum of the smallest three-digit prime number and the highest two-digit even integer?
 A) 197 B) 198 C) 199 D) 200 E) 204

22. $\frac{4\sqrt{3}}{2 + \sqrt{3} + \sqrt{7}}$

A) $\frac{7}{4}$

C) $\frac{3}{4(2 - \sqrt{7})}$

D) $2\sqrt{3} + 4 + 4\sqrt{21}$

B) $2 + \sqrt{3} - \sqrt{7}$

E) $2 + \sqrt{3} + \sqrt{7}$

23. Karmaşık düzlemde $z = 3 - i$ olduğuna göre $|z^{-1}|$ kaçtır ?

If $z = 3 - i$ in the complex plane, what is $|z^{-1}|$?

A) $\frac{\sqrt{10}}{10}$

B) $\frac{\sqrt{10}}{20}$

C) $\frac{\sqrt{15}}{20}$

D) $\frac{\sqrt{15}}{30}$

E) $\frac{\sqrt{10}}{50}$

E) $y = \begin{cases} x^2, & x < 1 \\ x^2, & x \leq 1 \\ |x+2|, & x > 1 \end{cases}$

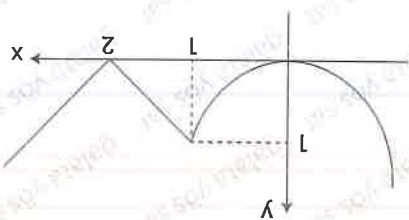
D) $y = \begin{cases} x^2, & x < 1 \\ 1, & x = 1 \\ |x-2|, & x > 1 \end{cases}$

C) $y = x^2 - |x-2|$

B) $y = x^2 - |x^2 - x + 2|$

A) $y = \begin{cases} x^2, & x < 1 \\ \sin\left(\frac{2}{x}\right), & x = 1 \\ |x|, & x > 1 \end{cases}$

25. Şekilde verilen grafiğin denklemini hangisidir ?
What is the equation of the graph given in the figure?



25.

26. $\lim_{x \rightarrow 1} \frac{(x^2 - x)^4 \cdot (x - 1)}{(x^2 - 1)^5} = ?$

A) $\frac{32}{1}$

B) $\frac{20}{1}$

C) $\frac{16}{1}$

E) $\frac{4}{1}$

24. $\lim_{x \rightarrow 0} 3x - \sin 2x = ?$

A) 0

B) 1

C) $\frac{2}{3}$

D) 2

E) $\frac{5}{2}$

27. $\lim_{x \rightarrow 0} \frac{\sqrt{4x^2 + 8x + 1} - \sqrt{x^2 - 6x + 4}}{x + \sqrt{x^2 + 6x}} = ?$

A) 0

B) $\frac{1}{2}$

C) $\frac{3}{2}$

D) $\frac{2}{3}$

E) 2

28. $a, b \in \mathbb{R}$

$$\lim_{x \rightarrow +\infty} \left(\frac{3x^2 - x + ax}{2x + 1} \right) = b = a + b = ?$$

- A) $-\frac{4}{1}$ B) $-\frac{4}{3}$ C) $-\frac{4}{5}$ D) $-\frac{4}{7}$ E) $-\frac{4}{11}$

1. O merkezli çember

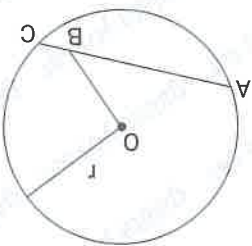
O center

$|BC| = 2$

$|OB| = 3\sqrt{5}$

$|AB| = 14$

$r = ?$



- A) $\sqrt{73}$ B) $6\sqrt{2}$ C) $\sqrt{27}$ D) $8\sqrt{2}$ E) $8\sqrt{3}$

29. $\lim_{x \rightarrow -1} \frac{1 + \sqrt[3]{x}}{1 + \sqrt[5]{x}} = ?$

- A) $\frac{2}{3}$ B) $\frac{3}{2}$ C) $\frac{4}{3}$ D) $\frac{3}{5}$ E) $\frac{7}{5}$

2.

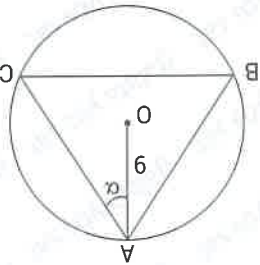
O merkezli çember

O center

$|OA| = 9$

$|AC| = 9\sqrt{3}$

$\alpha = ?$



- A) 45 B) 30 C) 60 D) 75 E) 90

30. $\lim_{x \rightarrow 0} \frac{\arcsin x}{x} = ?$

- A) 0 B) $\frac{7}{1}$ C) $\frac{3}{1}$ D) 1 E) ∞

3.

[BC]: yarım çemberin çapı

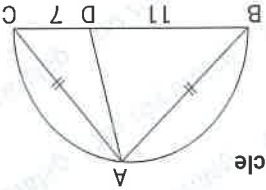
[BC]: diameter of the semicircle

$|AB| = |AC|$

$|DC| = 7$

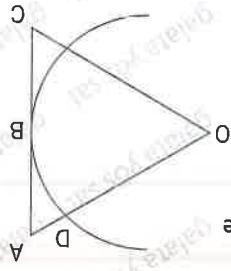
$|BD| = 11$

$|AD| = ?$

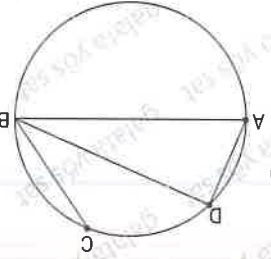


- A) 8 B) 9 C) $\sqrt{82}$ D) $\sqrt{83}$ E) $\sqrt{85}$

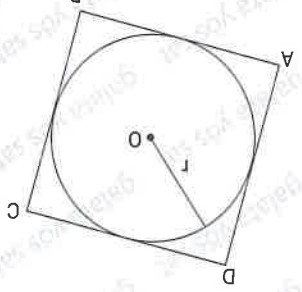
4. O: çemberin merkezi
 O: center of the circle
 B: teğet noktası
 B: tangent point
 $|AD| = 2$
 $|AB| = 4$
 $r = ?$
 A) 2 B) 3 C) 4 D) 5 E) 6



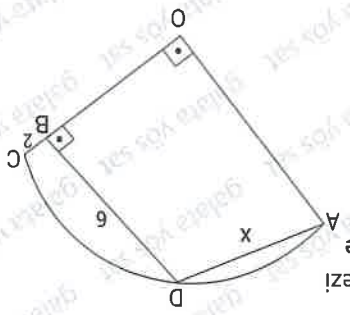
7. [AB] çap
 [AB] diameter
 $m(\widehat{AD}) = m(\widehat{DC}) = m(\widehat{BC})$
 $\frac{|BC|}{|BD|} = ?$
 A) $\frac{\sqrt{3}}{1}$ B) $\sqrt{3}$ C) 1 D) $\frac{1}{2}$ E) $\frac{3}{1}$



5. ABCD kare
 ABCD square
 O merkez
 O center
 $A(ABCD) = 100$
 $r = ?$

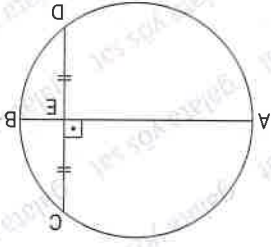


8. O: çeyrek çemberin merkezi
 O Center of quarter circle
 $[AO] \perp [OC]$
 $[BD] \perp [OC]$
 $|BC| = 2$
 $|BD| = 6$
 $|AD| = x$



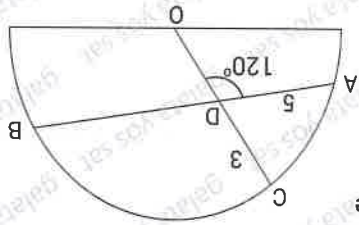
A) 5 B) 6 C) 7 D) 8 E) 10

9. [AB] çap
 [AB] diameter
 $|CE| = |ED| = 2\sqrt{3}$
 $|EB| = 3$
 $|AB| = ?$

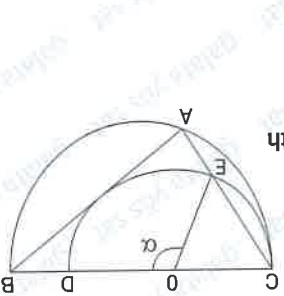


A) 4 B) 6 C) 7 D) 8 E) 9

9. O merkezli yarım çember
 O center of Semicircle
 $m(\widehat{ADO}) = 120^\circ$
 $|CD| = 3$
 $|AD| = 5$
 $|DB| = ?$

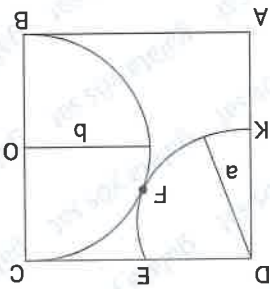


A) 13 B) 16 C) 19 D) 21 E) 23



13. [BC] : çap
[BC] : diameter
O : [CD] çaplı yarım çemberin merkezi
O : center of the semicircle with the Diameter [CD].
 $m(\widehat{AB}) = 140^\circ$
 $\alpha = ?$

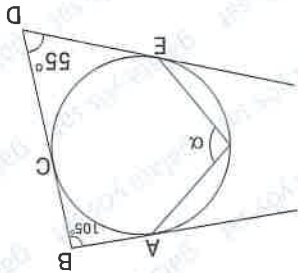
- A) 60 B) 70 C) 80 D) 120 E) 140



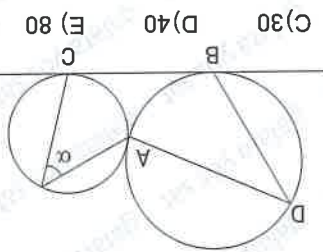
10. ABCD kare
ABCD square
O Yarım çemberin merkezi
O Center of the semicircle
D Çeyrek çemberin merkezi
D Center of the quarter circle
F Teğet noktası
F Tangent point
 $\frac{a}{b} = ?$

- A) $\sqrt{5}$ B) $\sqrt{5} + 1$ C) $\sqrt{5} - 1$ D) $2\sqrt{5}$ E) $2\sqrt{5} - 2$

14. A, C, E : teğet noktaları
A, C, E; tangent points
 $m(\widehat{ABC}) = 105^\circ$
 $m(\widehat{EDC}) = 55^\circ$
 $\alpha = ?$

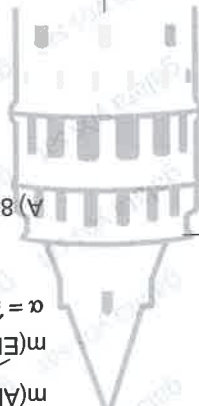


- A) 80 B) 90 C) 100 D) 105 E) 110

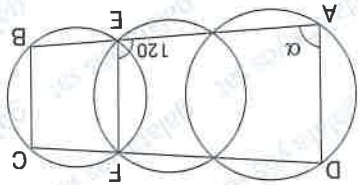


11. A, B, C : teğet noktaları
 $m(\widehat{BDA}) = 80^\circ$
 $\alpha = ?$

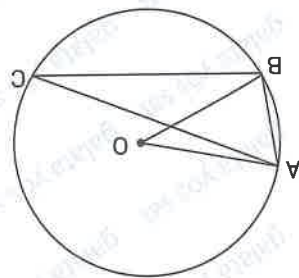
- A) 10 B) 20 C) 30 D) 40 E) 80



15.



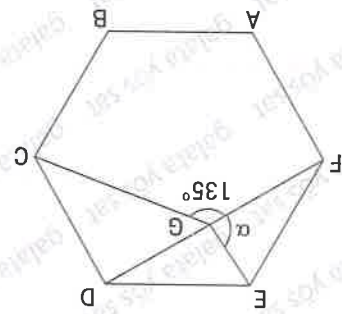
A) 50 B) 55 C) 60 D) 100 E) 120
 $\alpha = ?$
 $m(\widehat{AEF}) = 120^\circ$



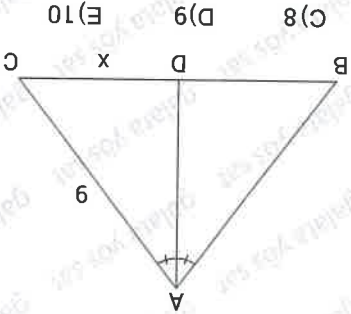
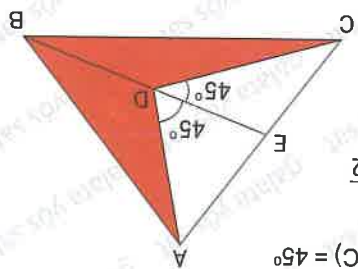
12. O merkez
O center
 $m(\widehat{ABO}) = 3\alpha$
 $m(\widehat{ACB}) = 2\alpha$
 $m(\widehat{AOB}) = ?$

- A) 80 B) 90 C) 100 D) 110 E) 72

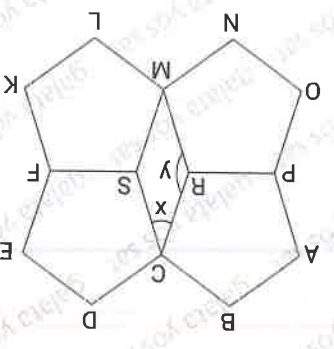
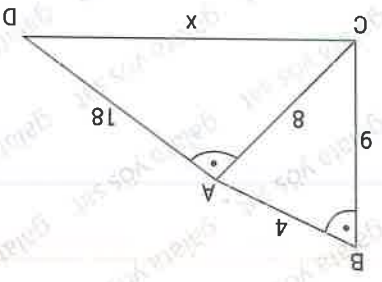
18. ABCDEF düzğün altigen
 ABCDEF regular hexagon
 $m(\widehat{CGF}) = 135^\circ$
 $\alpha = ?$
- A) 45 B) 60 C) 75 D) 100 E) 105



17. $m(\widehat{ADE}) = m(\widehat{EDC}) = 45^\circ$
 $|DB| = 3\sqrt{2}$
 $|AD| + |DC| = 18\sqrt{2}$
 $A(ABCD) = ?$
- A) $18\sqrt{2}$ B) $20\sqrt{2}$ C) $24\sqrt{2}$ D) $27\sqrt{2}$ E) $30\sqrt{2}$
20. [AD] ağırtay
 $|AC| = 9$
 $x \in Z^+$
 $x \text{ max} = ?$
- A) 6 B) 7 C) 8 D) 9 E) 10



16. $m(\widehat{CBA}) = m(\widehat{CAD})$
 $|AB| = 4$
 $|AC| = 8$
 $|BC| = 9$
 $|AD| = 18$
 $|CD| = x = ?$
- A) 8 B) 14 C) 14 D) 16 E) 18
19. ABCRP, düzğün beşgen
 ABCRP, regular pentagon
 CDEF, " "
 SFKLM, " "
 PRMNO, " "
 $m(\widehat{MRC}) = y$
 $m(\widehat{RCS}) = x$
 $y - x = ?$
- A) 100 B) 108 C) 110 D) 112 E) 120



Başarıya Götüren Yol

Mat	Problems / Problems	Mat	Order - Order
Mat	Problems / Problems	Mat	Order - Order
Mat	Problems / Problems	Mat	Order - Order

Mat	Order - Order	Mat	Order - Order
Mat	Order - Order	Mat	Order - Order
Mat	Order - Order	Mat	Order - Order

KTS-23

Mat	Deriv / Derivative	Mat	Order - Order
Mat	Deriv / Derivative	Mat	Order - Order
Mat	Deriv / Derivative	Mat	Order - Order

Mat	Limit, Süreklilik / Limit Continuity	Mat	Order - Order
Mat	Limit, Süreklilik / Limit Continuity	Mat	Order - Order
Mat	Limit, Süreklilik / Limit Continuity	Mat	Order - Order

Mat	Trigonometri / Trigonometry	Mat	Order - Order
Mat	Trigonometri / Trigonometry	Mat	Order - Order
Mat	Trigonometri / Trigonometry	Mat	Order - Order

Mat	Polinom / Polynomial	Mat	Order - Order
Mat	Polinom / Polynomial	Mat	Order - Order
Mat	Polinom / Polynomial	Mat	Order - Order

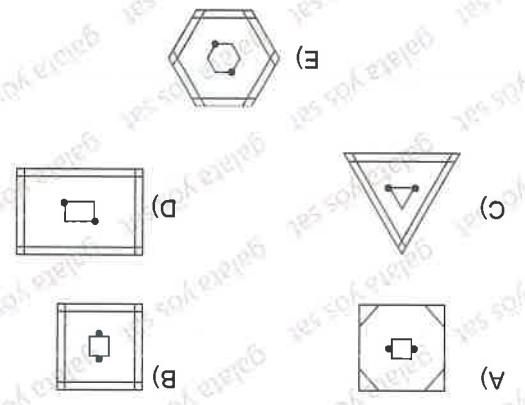
Mat	İşlem / Operation	Mat	Order - Order
Mat	İşlem / Operation	Mat	Order - Order
Mat	İşlem / Operation	Mat	Order - Order

Mat	Doğal Sayılar / Natural numbers	Mat	Order - Order
Mat	Doğal Sayılar / Natural numbers	Mat	Order - Order
Mat	Doğal Sayılar / Natural numbers	Mat	Order - Order

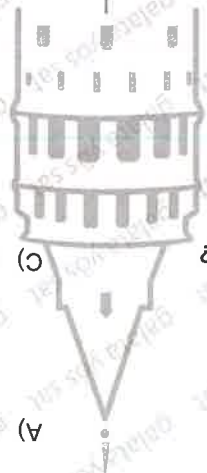
Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Order - Order
Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Order - Order
Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Order - Order

Mat	İşlem Üncesi ve Rasyonel Sayılar	Mat	Order - Order
Mat	İşlem Üncesi ve Rasyonel Sayılar	Mat	Order - Order
Mat	İşlem Üncesi ve Rasyonel Sayılar	Mat	Order - Order

1. Aşağıdakilerden hangisi diğerlerinden farklıdır ?
Which of the following is different from the others?



2. Aşağıdakilerden hangisi diğerlerinden farklıdır ?
Which of the following is different from the others?
A) FG B) RS C) FE D) TU E) NO



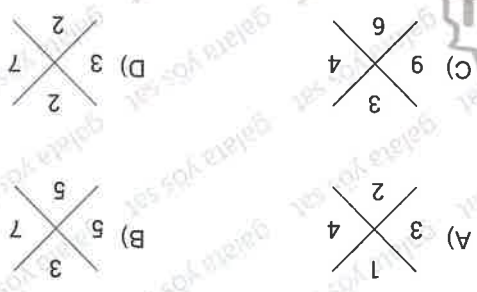
3. Aşağıdakilerden hangisi diğerlerinden farklıdır ?
Which of the following is different from the others?

- A) 3421
- B) 7553
- C) 3842
- D) 4782
- E) 9327

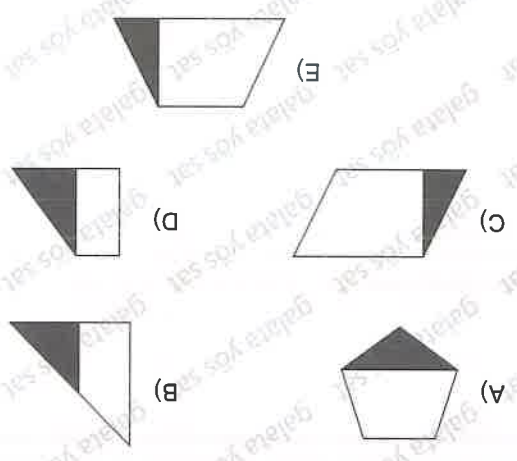
4. Aşağıdakilerden hangisi diğerlerinden farklıdır ?
Which of the following is different from the others?

- A) NAFİLE
- B) NEDİME
- C) ZAHİRE
- D) KAHİRE
- E) FARİZE

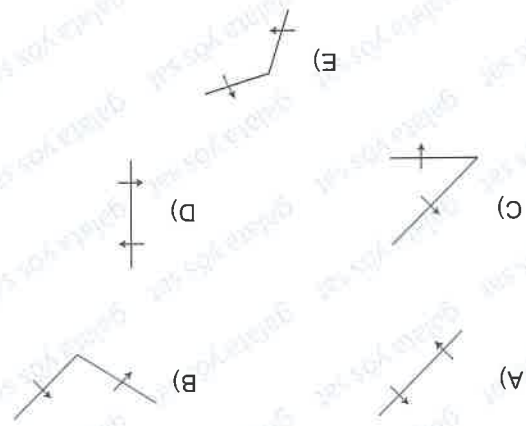
5. Aşağıdakilerden hangisi diğerlerinden farklıdır ?
Which of the following is different from the others?



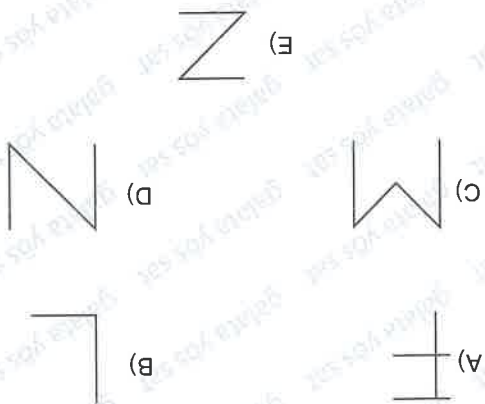
6. Aşağıdakilerden hangisi diğerlerinden farklıdır ?
Which of the following is different from the others?



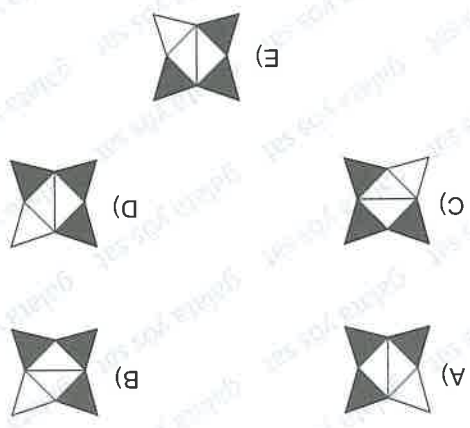
7. Aşağıdakilerden hangisi diğerlerinden farklıdır ?
Which of the following is different from the others?



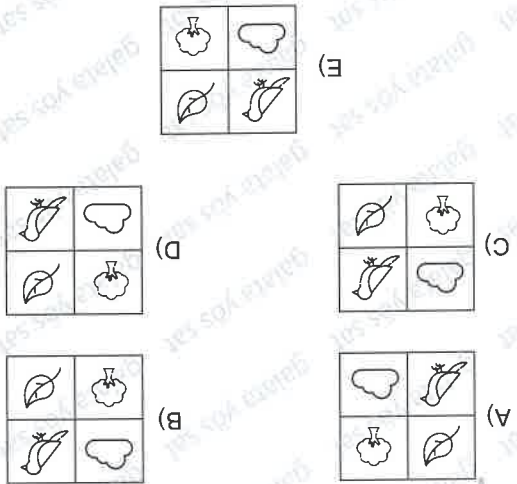
9. Aşağıdakilerden hangisi diğerlerinden farklıdır ?
Which of the following is different from the others?



8. Aşağıdakilerden hangisi diğerlerinden farklıdır ?
Which of the following is different from the others?

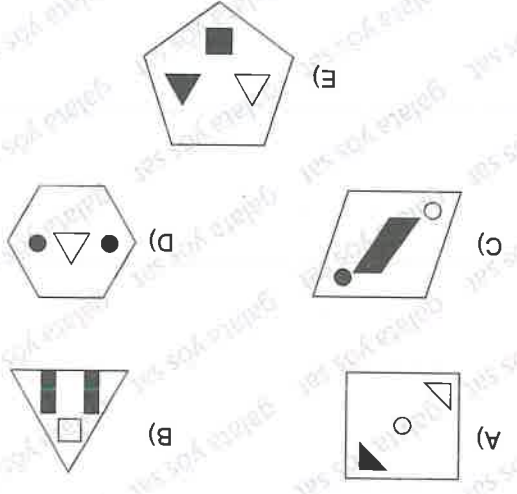


10. Aşağıdakilerden hangisi diğerlerinden farklıdır ?
Which of the following is different from the others?



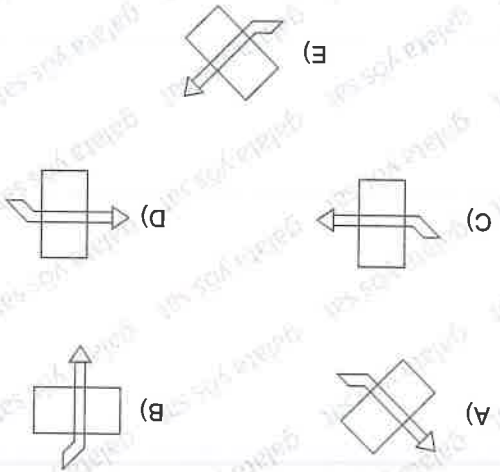
11. Aşağıdaki şekiller ikiye bölünür. Hangisi diğerlerinden farklıdır? Olmayan şekli hangisidir?

When the figures below are matched by pair, what is the unique figure?



14. Aşağıdaki kâğıtlardan hangisi diğerlerinden farklıdır? Hangisi diğerlerinden farklıdır?

Which of the following is different from the others?



12. Aşağıdaki şekiller ikiye bölünür. Hangisi diğerlerinden farklıdır? Olmayan şekli hangisidir?

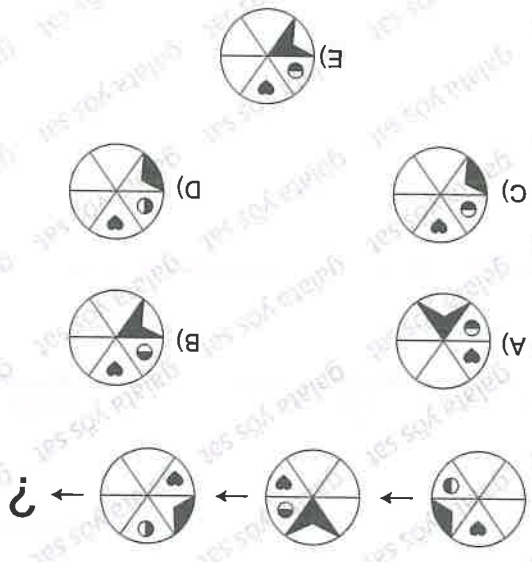
When the figures below are matched by pair, what is the unique figure?



A) Ö B) A C) Ü D) E E) İ

13. Aşağıdaki kâğıtlardan hangisi diğerlerinden farklıdır? Hangisi diğerlerinden farklıdır?

Which of the following is different from the others?



- A) 11, 13, 17, 25, 32
- B) 22, 26, 34, 41, 46
- C) 14, 16, 19, 23, 28
- D) 92, 103, 107, 115, 122
- E) 49, 62, 70, 77, 91

19. 

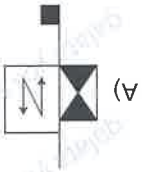
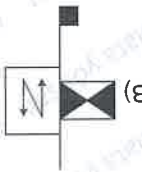
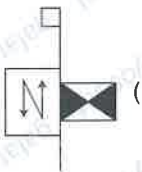
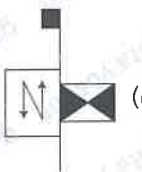
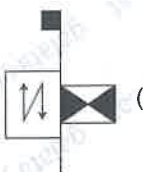
(B) 

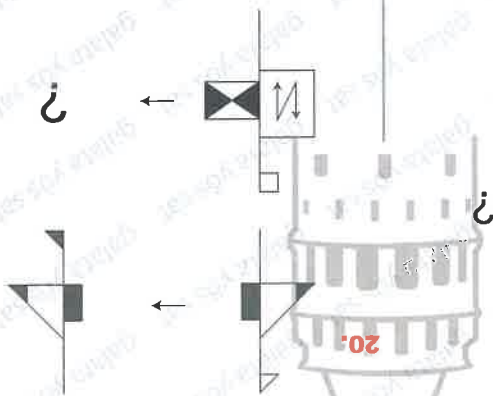
(D) 

(E) 

(A) 

(C) 

(A)  (A)
 (B)  (B)
 (C)  (C)
 (D)  (D)
 (E)  (E)



17. 

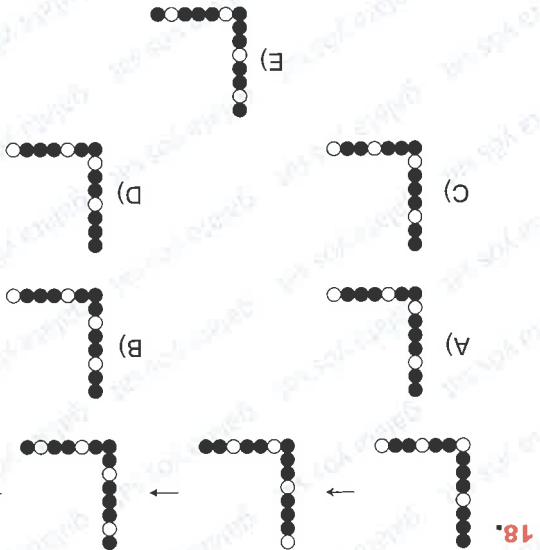
(C) 

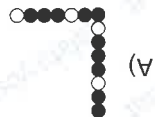
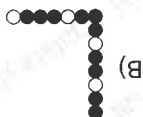
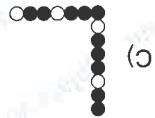
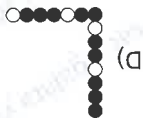
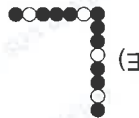
(A) 

(D) 

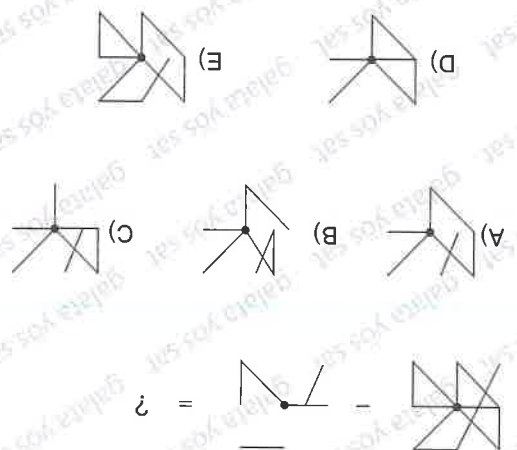
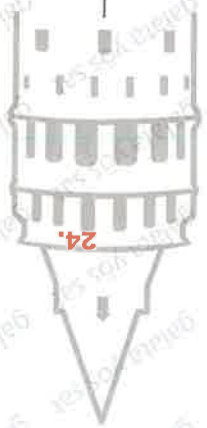
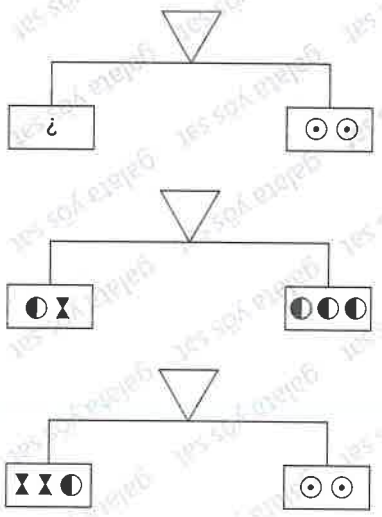
(B) 

(E) 

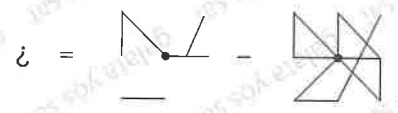
18. 

(A)  (A)
 (B)  (B)
 (C)  (C)
 (D)  (D)
 (E)  (E)

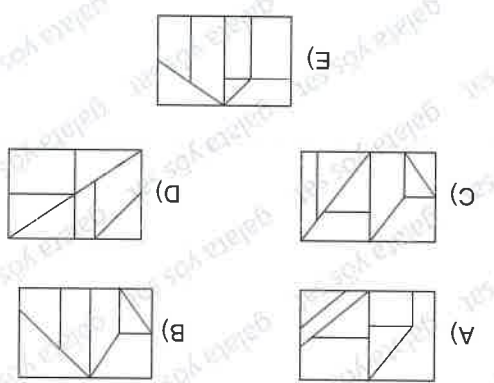
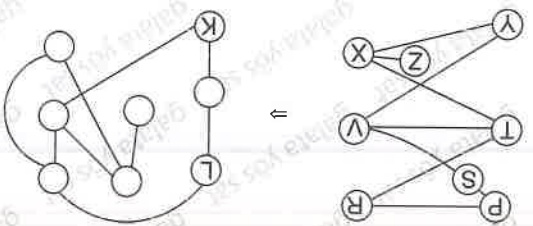
- A) ●●●●●
- B) ●●●●●
- C) ●●●●●
- D) ●●●●●
- E) ●●●●●



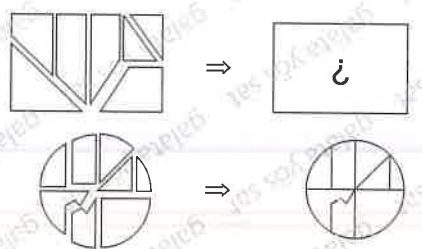
22.









- A) T
- B) P
- C) V
- D) R
- E) S



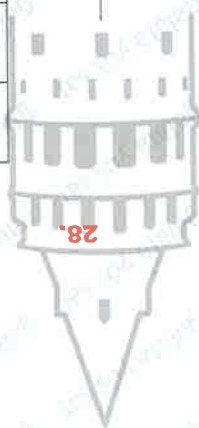
21.



- A) 61 B) 70 C) 78 D) 86 E) 89

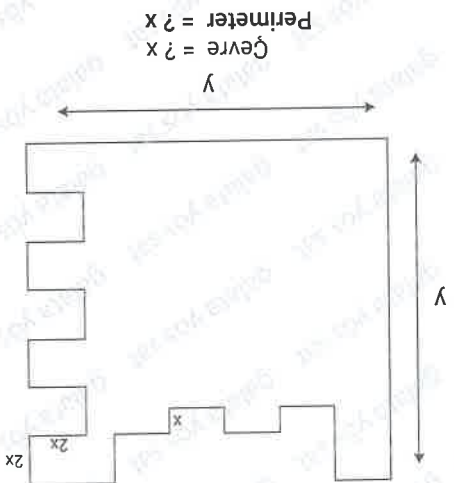
	A	B	25
	45	52	C
	25	32	41
			

$\Rightarrow A+B+C = ?$



28.

- A) 72 B) 73 C) 76 D) 78 E) 80



Perimeter = ?
Çevre = ?
 x

27.

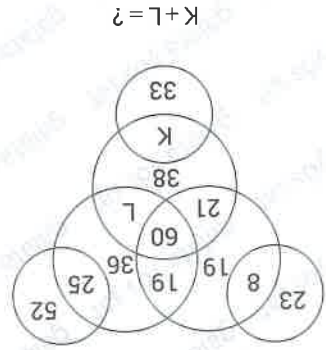
- A) K B) L C) M D) N E) P

$((K * P) * (M * N)) * L = N * ?$

P	N	P	K	L	M
N	M	N	P	K	L
M	L	M	N	P	K
L	K	L	M	N	P
K	P	K	L	M	N
*	K	L	M	N	P

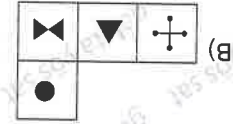
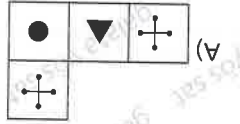
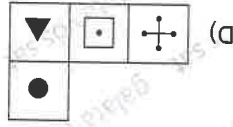
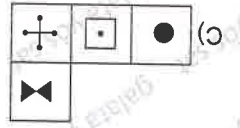
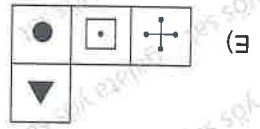
26.

- A) 47 B) 41 C) 35 D) 37 E) 29



$K+L = ?$

25.



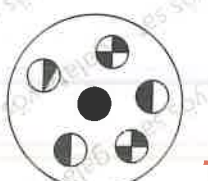
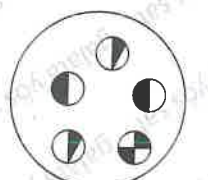
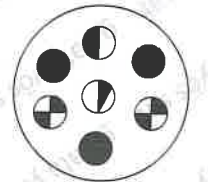
#	{	⊗	⊗
☆	⊗	⊗	#
{	#	{	☆

⊗	▽	□	⊕
?	?	?	⊗
?	⊗	▽	●

1.

II.

30.



29.

- A) 3,1,1,2
- B) 3,1,2,1
- C) 1,1,2,3
- D) 2,3,1,1
- E) 3,2,1,1

2.

$$\lim_{x \rightarrow -\infty} \frac{2^{x+1} + 3^x}{3^{x+1} + 2^x} = ?$$

- A) $\frac{3}{1}$
- B) $\frac{3}{2}$
- C) 1
- D) $\frac{3}{4}$
- E) 2

3. If the function is always decreasing, what range is a?
fonksiyonu daima azalan ise a hangi aralıktadır ?

$$f(x) = -\frac{3}{1}x^3 + ax^2 - x - 1$$

- A) $(-\infty, -1)$
- B) $(-1, 0)$
- C) $(0, 1)$
- D) $(-1, 1)$
- E) $(1, \infty)$

7.

f ve g fonksiyonları (a,b) aralığında pozitif tanımlı, $f(x)$ artan ve $g(x)$ azalan bir fonksiyon olduğuna göre, aşağıdakilerden hangisi daima artandır ?

Since f and g are positively definite functions in the interval (a, b) , $f(x)$ increasing and $g(x)$ decreasing, which of the following is always increasing?

- A) $f(x)+g(x)$ B) $g(x)-f(x)$ C) $f(x) \cdot g(x)$ D) $\frac{f(x)}{g(x)}$ E) $\frac{f(x)}{g(x)}$

8.

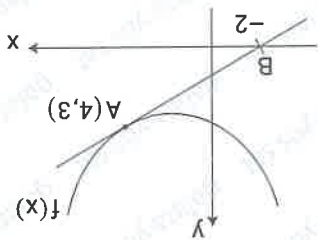
$f(x) = \ln \frac{x^2}{x^2}$ fonksiyonunun yerel ekstremum noktasının apsisi kaçtır ?

What is the abscissa of the local extreme point of the function $f(x) = \ln \frac{x^2}{x^2}$ function?

- A) $e^{\frac{1}{2}}$ B) $e^{\frac{1}{2}}$ C) 0 D) e E) e^2

5.

Şekilde $A(4,3)$ ve $B(-2,0)$ noktaları verilmiştir. f fonksiyonu AB doğrusuna A noktasında teğet ise f fonksiyonun f tangente to the line AB at point A if the function f is tangent to the line AB at point A . Points $A(4,3)$ and $B(-2,0)$ are given in the figure.



- A) 0 B) 1 C) 2 D) 3 E) 4

6.

$f(x) = x^3 - 3ax^2 + 3x + 1$ veriliyor. $f'(x)$ fonksiyonunun yerel minimum değerinin sıfır olması için a kaç olmalıdır ?

$f(x) = x^3 - 3ax^2 + 3x + 1$ is given. What must A be for the local minimum value of $f'(x)$ to be zero ?

- A) ± 1 B) ± 2 C) ± 3 D) ± 4 E) 0

9.

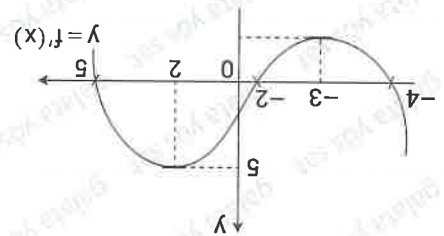
$f(x) = \frac{3}{1}x^3 - x^2 + 1$ fonksiyonunun dönüm noktasından çizilen teğetin denklemini hangisidir ?

Which is the equation of the tangent drawn from the turning point of the function?

- A) $y = 3x - 1$ B) $3y = 3x - 1$ C) $3y = -3x - 4$ D) $3y = 3x - 2$ E) $3y = -3x + 4$

10. Yarıçapı 4 cm olan bir kürenin içine gizlenen maksimum hacimli dik silindirin yüksekliği kaç cm dir ?
What is the height of a vertical cylinder with maximum volume drawn in a sphere with a 4 cm radius?

A) $4\sqrt{3}$ B) $2\sqrt{3}$ C) $8\sqrt{3}$ D) $\sqrt{3}$ E) $\frac{4\sqrt{3}}{3}$



Yukarıdaki $y = f'(x)$ türev fonksiyonunun grafiği verilmiştir. Buna göre f fonksiyonu için hangisi doğrudur ?

The graph of the derivative function $y = f'(x)$ is given above. So which one is true for function f ?

A) $0 < x < 5$ aralığında azalandır / decrease

B) $-3 < x < -2$ aralığında artandır / increase

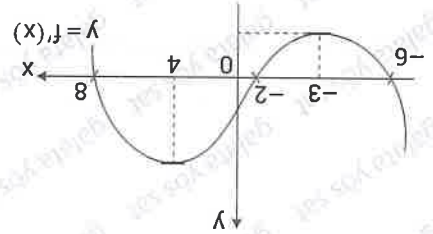
C) $x = 2$ de yerel maksimum vardır / local maximum

D) $x = -4$ de yerel maksimum vardır / local maximum

E) $x = -2$ de yerel maksimum vardır / local maximum

11.

Yukarıdaki $f'(x)$ fonksiyonunun grafiğine göre aşağıdakilerden hangisi kesinlikle yanlıştır ?
According to the graph of the function $f'(x)$ above, which of the following is absolutely false?



A) $f'(-5) \cdot f'(2) < 0$

B) $f'(-3) \cdot f'(4) < 0$

C) $f'(-3) + f'(5) < 0$

D) $f''(3) \cdot f''(4) < 0$

E) $f'(4) - f'(6) > 0$

12.

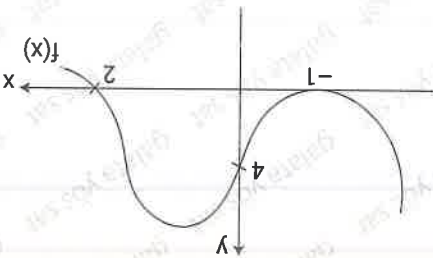
14. 60 kişilik bir grupta Fransızca bilen 50 kişi, Almanca bilen 46 kişi olduğuna göre Fransızca ve Almanca bilen kaç kişidir ?
Since there are 50 people in a group of 60 who speak French and 46 who speak German, how many people are there who can speak French and German?

A) 14 B) 24 C) 28 D) 36 E) 38

15. 1,2,3,4,5,6,7,8,9 sayılarının her birini seçilerek kutulara yerleştirildiğimizde ilk beş kutuda bulunan sayıların toplamı 18, son beş kutuda bulunan sayıların toplamı 32 olduğuna göre, boyalı kutuda bulunan sayı kaçtır ?
When we place each of the numbers 1,2,3,4,5,6,7,8,9 in the boxes shown in the figure, the total of the numbers in the first five boxes is 18, and the total of the numbers in the last five boxes is 32, what is the number in the painted box?



13. Yukarıda grafiği verilen fonksiyon aşağıdakilerden hangisidir ?
Which of the following is the function graphed above?



A) $y = 4(x+1)^2 \cdot (x-2)$

B) $y = 2(x+1)^2 \cdot (x-2)$

C) $y = (x+1)^2 \cdot (x-2)$

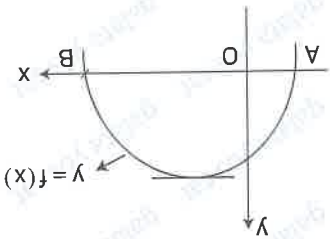
D) $y = -(x+1)^2 \cdot (x-2)$

E) $y = -2(x+1)^2 \cdot (x-2)$

19. $z = 1 + \sqrt{3}i$

z sayısının çarpma işleminin tersinin reel kısmı kaçtır?
What is the real part of the inverse of the number z by multiplication?

- A) $\frac{4}{\sqrt{3}}$ B) $\frac{2}{1}$ C) $\frac{4}{1}$ D) $-\frac{2}{1}$ E) $-\frac{4}{1}$



$y = f(x) = -2x^2 + 4x + 3m + 2$ parabolünün grafiği verilmiştir.

The graph of the $y = f(x) = -2x^2 + 4x + 3m + 2$ parabola

is given.

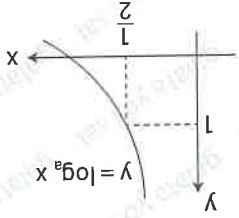
$|OB| = 3|OA|$ olduğuna göre, $f(x)$ fonksiyonunun y

ekseni kestiği noktanın ordinatı kaçtır?

$|OB| = 3|OA|$, what is the ordinate of the point where $f(x)$ intersects the y -axis?

- A) $\frac{3}{1}$ B) $\frac{3}{2}$ C) 1 D) $\frac{3}{4}$ E) 6

21.



Şekilde $f(x) = \log_a x$ fonksiyonunun grafiği verilmiştir.

The graph of the function $f(x) = \log_a x$ is given in

the figure.

$\Rightarrow f\left(f\left(\frac{1}{16}\right)\right) = ?$

- A) -3 B) -2 C) -1 D) 2 E) 3

20.

- A) -3 B) -5 C) -6 D) -9 E) -11

$$17. \begin{cases} 3 + \frac{1}{x} + \frac{1}{z} = \frac{1}{1} \\ 2 + \frac{1}{y} + \frac{1}{z} = \frac{1}{1} \\ 1 + \frac{1}{x} + \frac{1}{y} = \frac{1}{1} \end{cases} \quad \left\{ \begin{array}{l} x = ? \\ y = ? \\ z = ? \end{array} \right.$$

- A) 185 B) 178 C) 174 D) 169 E) 167

$$16. a \in \mathbb{Z}^+ \quad \frac{a}{7} \mid \frac{1}{3b-3} \quad \frac{b-5}{a} \mid \frac{1}{15}$$

$= a+b = ?$

What is the sum of the x value that satisfies the equation?

denklemi sağlayan x değerinin toplamı kaçtır?

18. $2^{2x} - 5 \cdot 2^{x+2} + 64 = ?$

- A) 3 B) 5 C) 6 D) 8 E) 20

24. $\lim_{x \rightarrow 0} \left(\frac{\ln(\cos x)}{\cos 2x - 1} \right) = ?$

- A) $-\frac{2}{1}$
- B) 0
- C) $\frac{1}{4}$
- D) $\frac{1}{2}$
- E) 1

27. $y = \ln^2 x + 2 \ln x \Rightarrow \frac{d^2 y}{dx^2} = ?$

- A) $\ln x$
- B) 0
- C) $-2 \ln x$
- D) $-\frac{x^2}{\ln x}$
- E) -1

23. $\lim_{x \rightarrow \infty} \left(\frac{7 + \frac{1}{x}}{5 - 9x} \right) = ?$

- A) -1
- B) 0
- C) 1
- D) 2
- E) 3

26. $\frac{x^3 - 2x - 1}{1} = -\frac{4}{5} \Rightarrow \frac{x^3 - 2x + 3}{1} = ?$

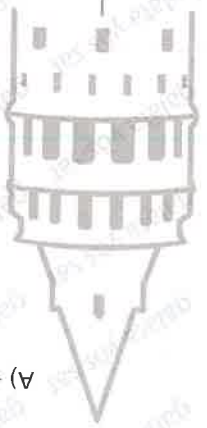
- A) $-\frac{2}{5}$
- B) $\frac{16}{5}$
- C) $\frac{16}{7}$
- D) $\frac{5}{4}$
- E) 1

22. $\sum_{k=1}^5 (mk + 4) = 110 \Rightarrow m = ?$

- A) 2
- B) 3
- C) 4
- D) 5
- E) 6

25. $\sin(45 - x) = \frac{4}{\sqrt{3}} \Rightarrow \sin 2x = ?$

- A) $\frac{8}{5}$
- B) $\frac{8}{\sqrt{13}}$
- C) $\frac{4}{3}$
- D) $\frac{8}{2}$
- E) $\frac{8}{\sqrt{15}}$



28. $\lim_{x \rightarrow 1} \frac{x^3 + x^2 - 5x + 3}{x^3 + 3x^2 - 9x + 5} = ?$

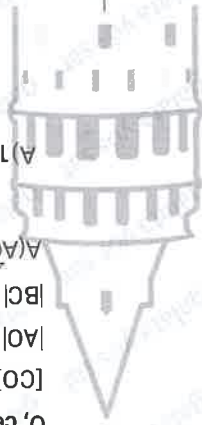
- A) 1 B) $\frac{3}{2}$ C) $\frac{3}{1}$ D) $-\frac{3}{1}$ E) $-\frac{2}{3}$

29. $\sin x \neq \cos x$
 $\frac{1 + \sin 2x}{4 \sin x} = \frac{\cos 2x}{\sin x - \cos x} \Rightarrow \cot x = ?$

- A) -5 B) -3 C) $-\frac{3}{1}$ D) $\frac{3}{1}$ E) $\frac{5}{1}$

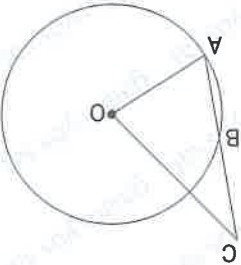
30. $x = u^3 - u^2 + 2$
 $y = 6u^2 - 8u \Rightarrow \frac{dy}{dx} = ?$

- A) $\frac{2}{2+u}$ B) $\frac{1}{1+u}$ C) $\frac{2}{u}$ D) $\frac{u}{2}$ E) $\frac{4}{u}$



2.

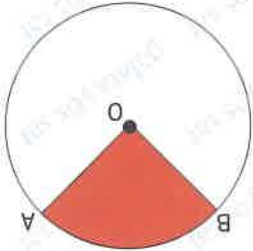
O; dairenin merkezi
 [CO] \perp [OA]
 $|AO| = 2\sqrt{13}$
 $|BC| = 5$
 $\angle AOC = ?$



- A) 16 B) 20 C) 36 D) 38 E) 39

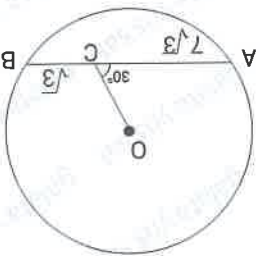
3.

O; dairenin merkezi
 $|AB| = 20$
 $|OB| = 7$
 Taralı alan = ?
 Shaded area = ?

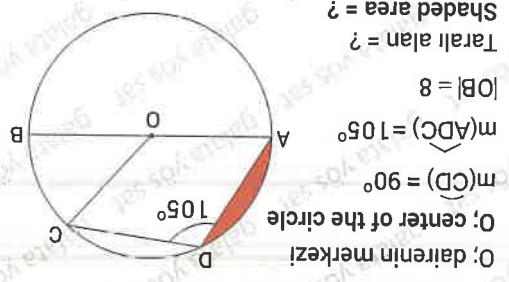


- A) 30 B) 35 C) 45 D) 70 E) 90

1. O; dairenin merkezi
 $|BC| = \sqrt{3}$
 $|AC| = 7\sqrt{3}$
 $m(\widehat{CA}) = 30^\circ$
 Dairenin alanı = ?
 Area of the circle = ?

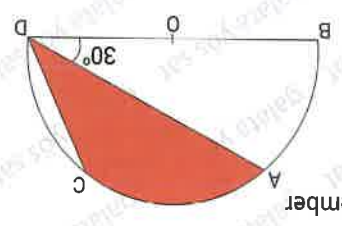


- A) 2π B) 9π C) 27π D) 48π E) 57π



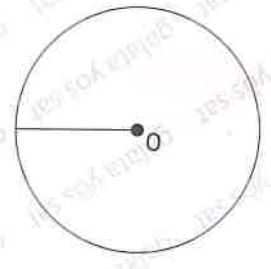
4. O_1 : dairenin merkezi!
 $m(\widehat{CD}) = 90^\circ$
 $m(\widehat{ADC}) = 105^\circ$
 $|OB| = 8$
 Taralli alan = ?
 Shaded area = ?

- A) $\frac{3}{2}\pi$ B) $\frac{3}{2}\pi - 16\sqrt{3}$ C) $\frac{3}{2}\pi - 8\sqrt{3}$
 D) $\frac{3}{2}\pi + 16\sqrt{3}$ E) $\frac{3}{2}\pi + 8\sqrt{3}$



5. [BD] yarım çaplı çember
 [BD] diameter
 $m(\widehat{AB}) = m(\widehat{AC})$
 $m(\widehat{ADB}) = 30^\circ$
 $|AD| = 7\sqrt{3}$
 Taralli alan = ?
 Shaded area = ?

- A) $\frac{6}{49}\pi$ B) $\frac{5}{49}\pi$ C) $\frac{3}{49}\pi$ D) $\frac{2}{49}\pi$ E) 49π



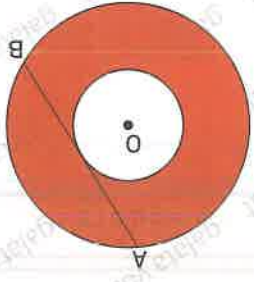
6. Çevresi 34π olan dairenin alanı nedir?
 What is the area of the circle with circumference 34π ?

- A) 34π B) 64π C) 81π D) 144π E) 289π

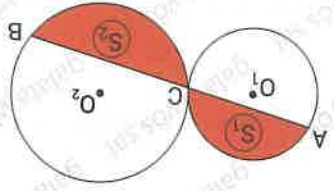


7. O : çemberlerin ortak merkezi!
 $|AB| = 18$
 TA (Taralli Alan) = ?
 Shaded area = ?

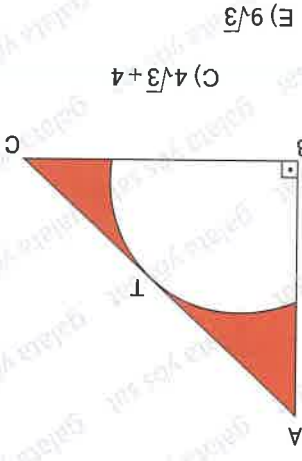
- A) 27π B) 36π C) 64π D) 81π E) 100π



8. O_1 : dairenin merkezi!
 O_2 : dairenin merkezi!
 $S_1 = \frac{16}{1}$
 $|BC| = 32$
 $|AC| = ?$



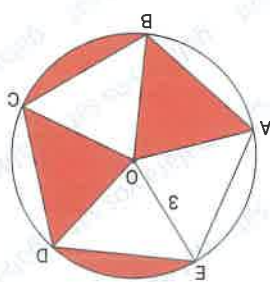
- A) 4 B) 6 C) 8 D) 12 E) 16



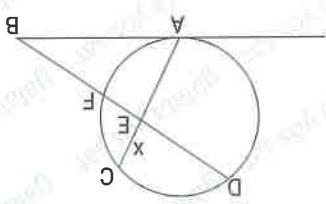
- A) 6 B) $4\sqrt{3}$ C) $4\sqrt{3} + 4$ D) $8\sqrt{3}$ E) $9\sqrt{3}$

9.

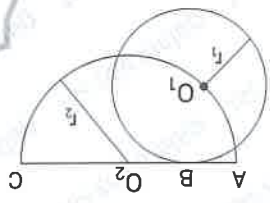
10. O: merkez / center
 ABCDE : düzgen besgen
 ABCDE : regular pentagon
 $|OE| = 3$
 O: düzgen besgen'in ağırlık merkezi
 O:center of gravity of regular pentagon
 Taralı alan = ?
 Shaded area = ?
 A) 9π B) 13π C) $\frac{18\pi}{5}$ D) $\frac{7}{18\pi}$ E) 18π



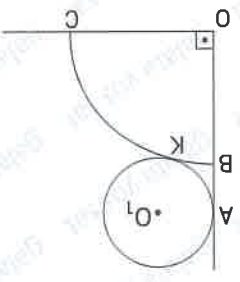
13. A : teğet noktası
 A: tangent point
 $|AE| = |BF| = 4$
 $|AB| = 8$
 $|ED| = 7$
 $|EC| = x = ?$
 A) $\frac{4}{35}$ B) 8 C) 11 D) 14 E) 16



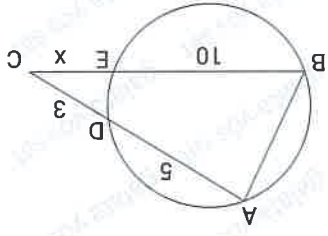
11. O₁: tam çemberin merkezi
 O₁: center of full circle
 O₂: yarım çemberin merkezi
 O₂: center of semicircle
 B: teğet noktası
 B: tangent point
 $|O_2B| = 2|AB|$
 $\frac{r_1}{r_2} = ?$
 A) $\frac{3}{\sqrt{5}}$ B) $\frac{2}{\sqrt{5}}$ C) $\sqrt{5}$ D) $2\sqrt{5}$ E) $3\sqrt{5}$



14. O₁: çeyrek çemberin merkezi
 O₁: center of the quarter circle
 O₂: tam çemberin merkezi
 O₂: center of the full circle
 A, K: Teğet noktaları
 A, K: Tangent points
 $|AO_1| = 5$
 $|OC| = 8$
 $|AB| = x = ?$
 A) 1 B) 2 C) 3 D) 4 E) 5

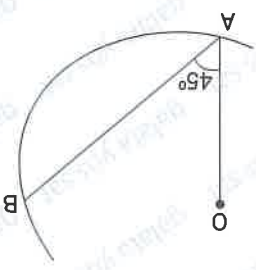


12. $|CD| = 3$
 $|AD| = 5$
 $|BE| = 10$
 $|EC| = x = ?$



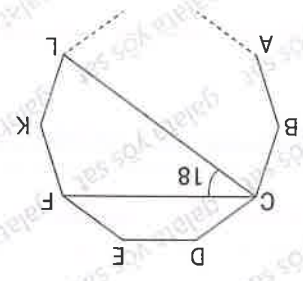
A) 2 B) 3 C) 4 D) 6 E) 8

15. O: çemberin merkezi
 O:center
 $m(\widehat{OAB}) = 45^\circ$
 $|AB| = 10$
 $|AO| = r = ?$



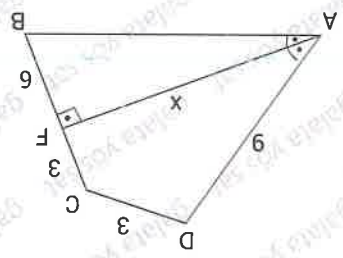
A) $5\sqrt{2}$ B) $7\sqrt{2}$ C) $8\sqrt{2}$ D) $9\sqrt{2}$ E) $10\sqrt{2}$

18. ABCDEF düzğün çöken polygon
 ABCDEF regular polygon
 $m(\widehat{FCL}) = 18^\circ$
 Çöken kaç kenarlıdır ?
 How many sides does this polygon have?

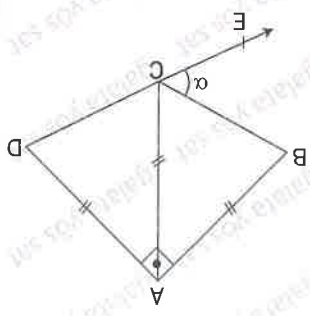


- A) 17 B) 18 C) 19 D) 20 E) 21

- A) 6 B) 9 C) $6\sqrt{3}$ D) $9\sqrt{3}$ E) $12\sqrt{3}$

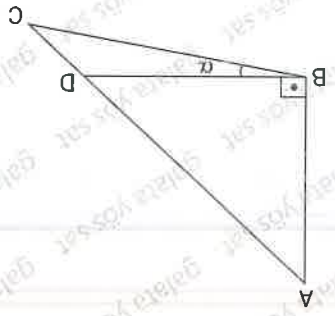


20. $[AF] \perp [BC]$
 $m(\widehat{DAF}) = m(\widehat{FAB})$
 $|CD| = |CF| = 3$
 $|BF| = 6$
 $|AD| = 9$
 $|AF| = x = ?$

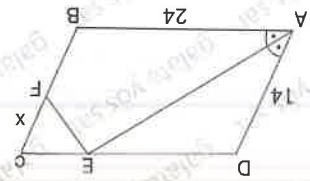


17. $[BA] \perp [DA]$
 $|AB| = |AC| = |AD|$
 $m(\widehat{BCE}) = \alpha = ?$

- A) 6 B) 7 C) 8 D) 9 E) 10



19. $[AB] \perp [BD]$
 $|AD| = 2|BC|$
 $m(\widehat{BAC}) = 24^\circ$
 $m(\widehat{CBD}) = \alpha = ?$



16. ABCD bir paralelkenar
 $m(\widehat{DAE}) = m(\widehat{EAB})$
 $[AE] \perp [EF]$
 $|AD| = 14$
 $|EF| = 8$
 $|AB| = 24$
 $x = ?$

Başarıya Götüren



Mat	Problem / Problem	Mat	Problem / Sorular
Mat	Problem / Sorular	Mat	Problem / Sorular
Mat	Problem / Sorular	Mat	Problem / Sorular
Mat	Problem / Sorular	Mat	Problem / Sorular

KTS-24

Mat	Integral / Integral	Mat	Türev / Derivative
Mat	Integral / Integral	Mat	Türev / Derivative
Mat	Integral / Integral	Mat	Türev / Derivative
Mat	Integral / Integral	Mat	Türev / Derivative
Mat	Integral / Integral	Mat	Türev / Derivative
Mat	Integral / Integral	Mat	Türev / Derivative

Mat	Logaritma Temel Kavramlar / Logarithm, Induction	Mat	Kuvvet Tanımlı Fonksiyonlar / Custom Defined Functions
Mat	Logaritma Temel Kavramlar / Logarithm, Induction	Mat	Kuvvet Tanımlı Fonksiyonlar / Custom Defined Functions
Mat	Logaritma Temel Kavramlar / Logarithm, Induction	Mat	Kuvvet Tanımlı Fonksiyonlar / Custom Defined Functions
Mat	Logaritma Temel Kavramlar / Logarithm, Induction	Mat	Kuvvet Tanımlı Fonksiyonlar / Custom Defined Functions

Mat	Kompleks Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry
Mat	Kompleks Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry
Mat	Kompleks Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry
Mat	Kompleks Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry

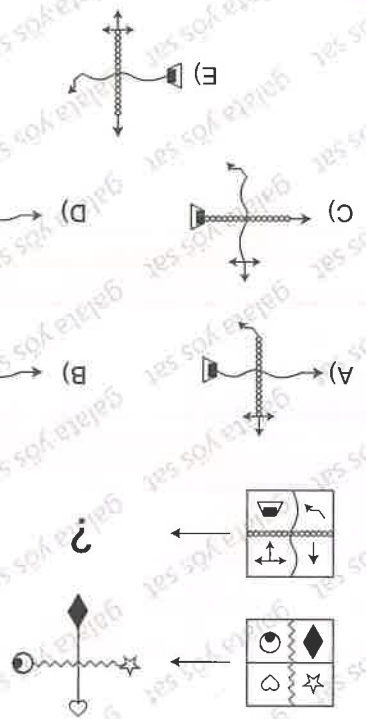
Mat	Modüler Aritmetik / Modular Arithmetic	Mat	Polinom / Polynomial
Mat	Modüler Aritmetik / Modular Arithmetic	Mat	Polinom / Polynomial
Mat	Modüler Aritmetik / Modular Arithmetic	Mat	Polinom / Polynomial
Mat	Modüler Aritmetik / Modular Arithmetic	Mat	Polinom / Polynomial

Mat	Matris / Operation	Mat	Kurucu Ürün ve Fonksiyonlar / Curves, Product and Functions
Mat	Matris / Operation	Mat	Kurucu Ürün ve Fonksiyonlar / Curves, Product and Functions
Mat	Matris / Operation	Mat	Kurucu Ürün ve Fonksiyonlar / Curves, Product and Functions
Mat	Matris / Operation	Mat	Kurucu Ürün ve Fonksiyonlar / Curves, Product and Functions

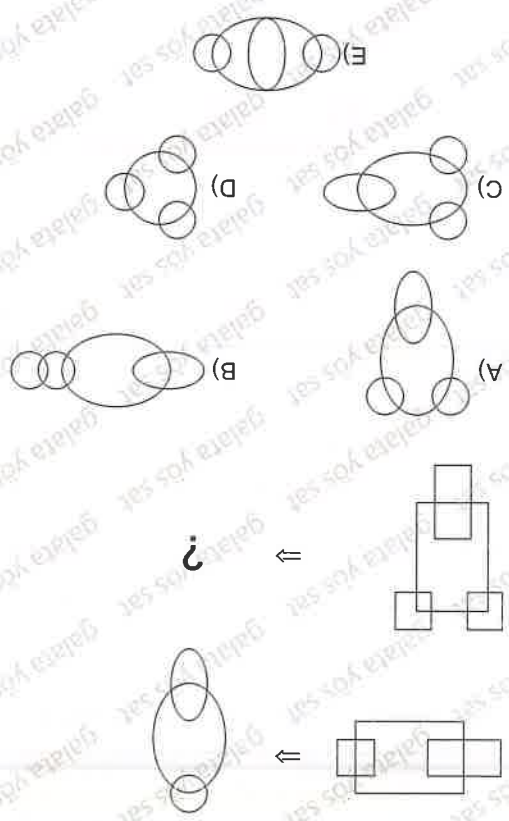
Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers
Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers
Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers
Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers

Mat	Basit Eşitsizlik ve Mutlak Değer / Simple Inequality and Absolute Value	Mat	Çarpma Ayrıştırma / Factorization
Mat	Basit Eşitsizlik ve Mutlak Değer / Simple Inequality and Absolute Value	Mat	Çarpma Ayrıştırma / Factorization
Mat	Basit Eşitsizlik ve Mutlak Değer / Simple Inequality and Absolute Value	Mat	Çarpma Ayrıştırma / Factorization
Mat	Basit Eşitsizlik ve Mutlak Değer / Simple Inequality and Absolute Value	Mat	Çarpma Ayrıştırma / Factorization

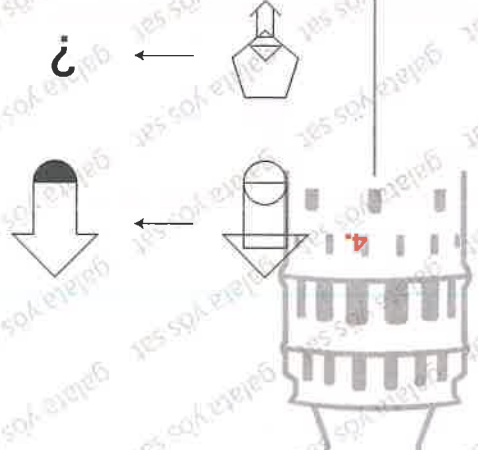
Mat	İkinci Derece ve Rasyonel Sayılar / Order of operations and Rational Numbers	Mat	Birinci Derece Denklem / First-Degree equations
Mat	İkinci Derece ve Rasyonel Sayılar / Order of operations and Rational Numbers	Mat	Birinci Derece Denklem / First-Degree equations
Mat	İkinci Derece ve Rasyonel Sayılar / Order of operations and Rational Numbers	Mat	Birinci Derece Denklem / First-Degree equations
Mat	İkinci Derece ve Rasyonel Sayılar / Order of operations and Rational Numbers	Mat	Birinci Derece Denklem / First-Degree equations



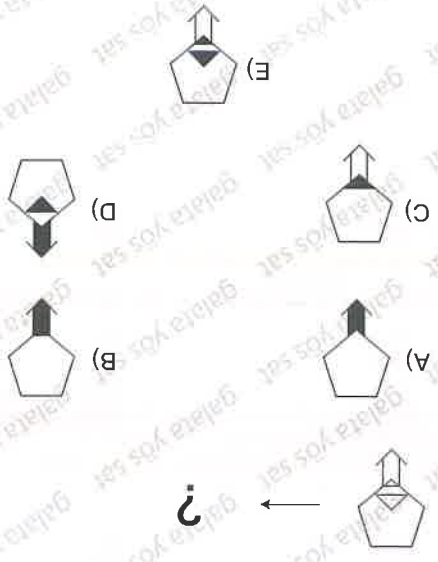
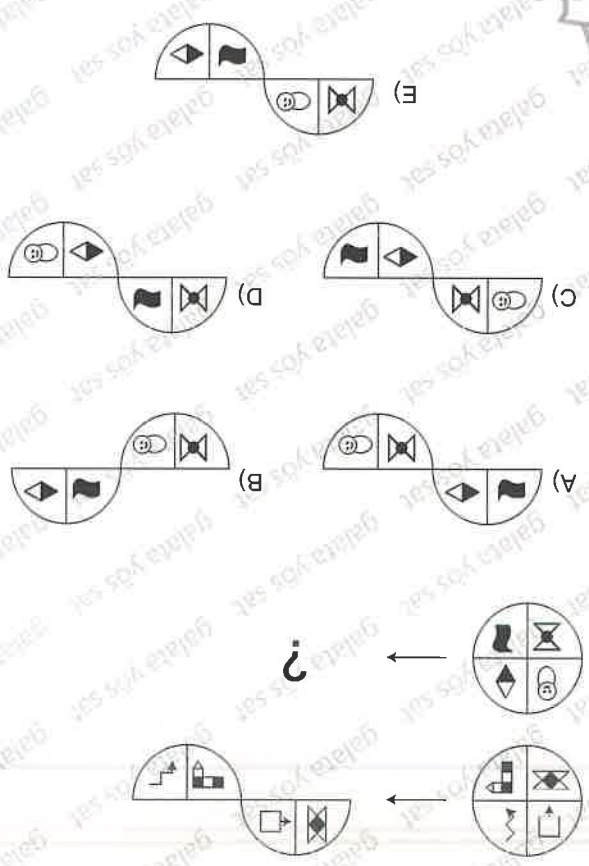
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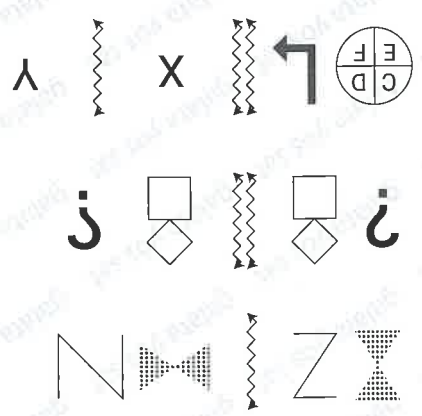
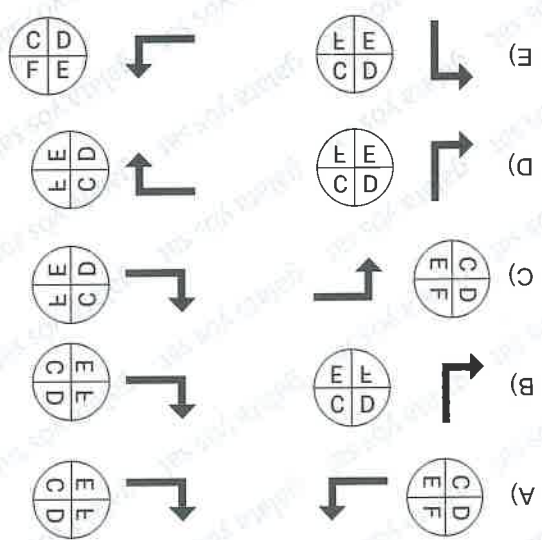
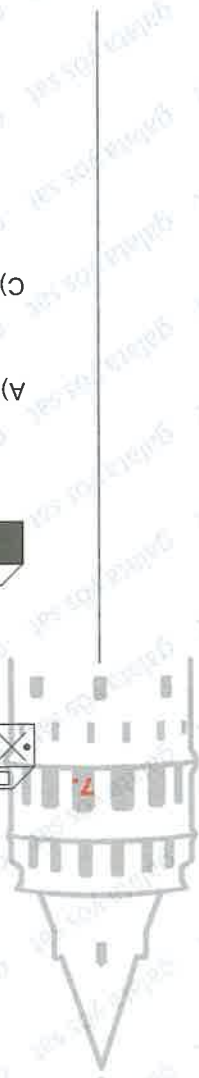
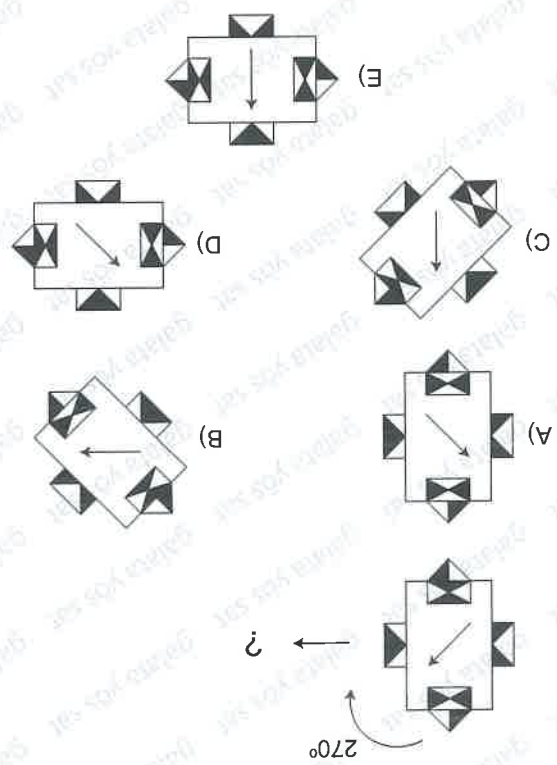
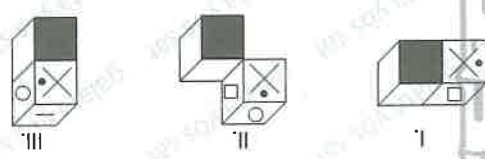
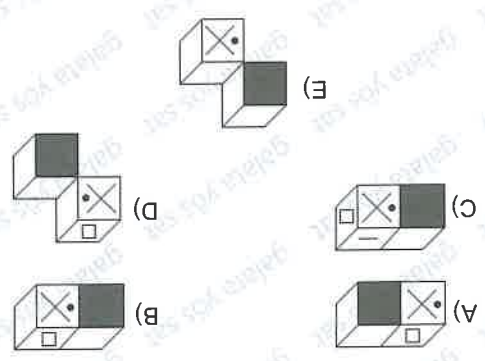


1.



3.



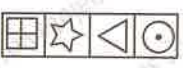
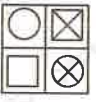
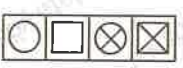









6.

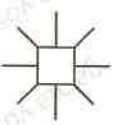
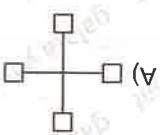
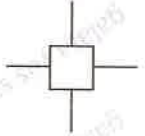
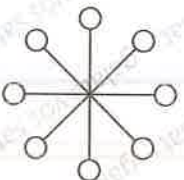

5.

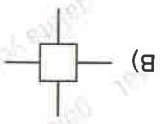
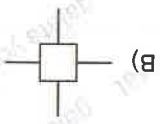
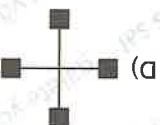
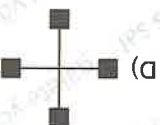
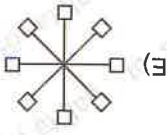
9.

 → ?
 → 
 → 

A) 
 B) 
 C) 
 D) 
 E) 




8.

 → C)
 → A)
 → ?
 → 

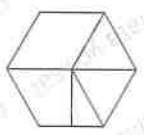
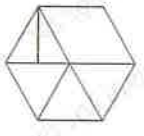
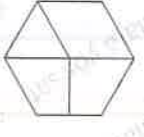
A) 
 B) 
 C) 
 D) 
 E) 

- A) $\frac{3}{10}$ B) $\frac{3}{8}$ C) $\frac{3}{11}$ D) $\frac{4}{10}$ E) $\frac{2}{9}$

10.

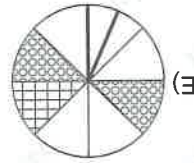
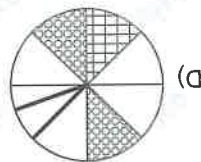
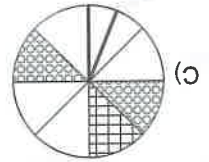
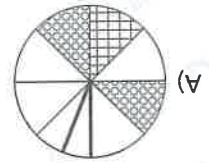
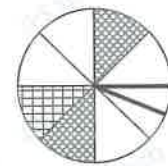
 → I) $\frac{1}{4} + 8$
 → II) $\frac{1}{4} + 4$
 → III) ?

- A) $2k + l + m + n$
 B) $k + 2l + m + n$
 C) $k + l + 2m + n$
 D) $k + l + m + 2n$
 E) $k + l + m + n$

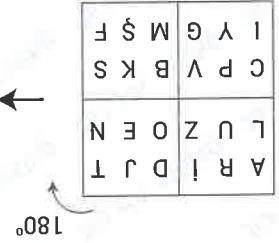
 → ?
 → $3l + m + 2n$
 → $2k + l + m$

12.

Yukarıdaki şekil saat yönünde 90° döndürülürse aşağıdakilerden hangisi elde edilir ?
 which of the following is the figure obtained by rotating the above figure 90° clockwise ?



13.

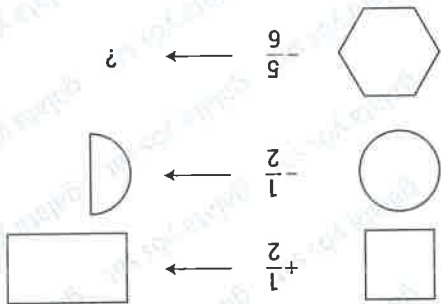


1, 8, 21	22, 16, 7
30, 18, 25	11, 14, 20
17, 31, 5	3, 4, 15
9, 23, 6	13, 2, 9

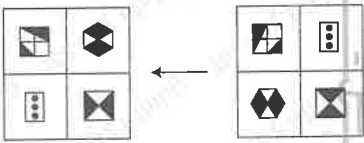
AŞKBAKIŞLI = 124
 KALPSAKİNI = ?

- A) 116 B) 164 C) 156 D) 147 E) 143

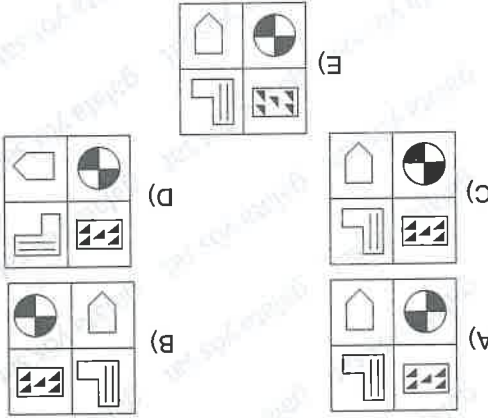
14.



- A) B) C) D) E)



- A) B) C) D) E)



- A) B) C) D) E)

16. Aşağıdakilerden hangisi diğerlerinden farklıdır?
Which of the following is different from the others?

- A) 891 B) 479 C) 684 D) 142 E) 255

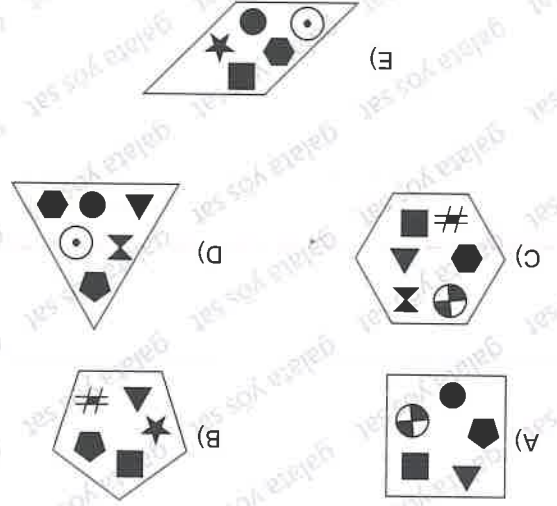
19. Aşağıdakilerden hangisi diğerlerinden farklıdır?
Which of the following is different from the others?



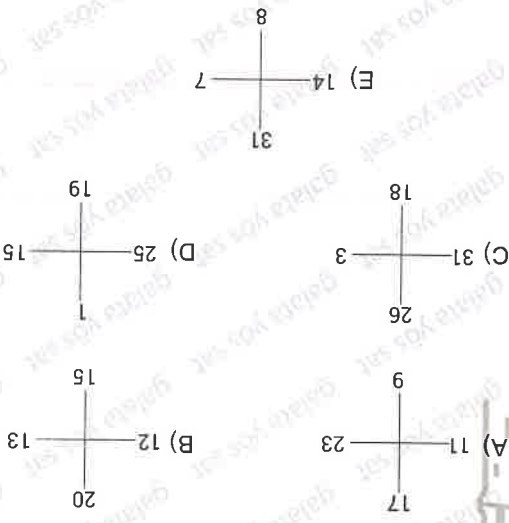
17. Aşağıdakilerden hangisi diğerlerinden farklıdır?
Which of the following is different from the others?

- A) 67 B) 98 C) 379 D) 986 E) 27

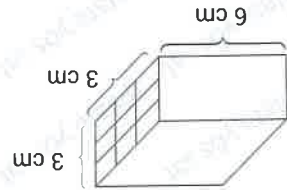
18. Aşağıdakilerden hangisi diğerlerinden farklıdır?
Which of the following is different from the others?



20. Aşağıdakilerden hangisi diğerlerinden farklıdır?
Which of the following is different from the others?



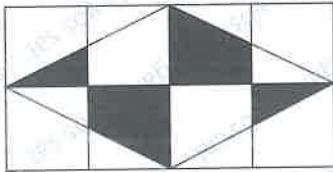
21.



Yukarıdaki cisim, 1 cm'lik küçük küplere ayrılırsa kaç tane küçük küp ortaya çıkar ?
How many cubes are formed if the object above is divided into 1 cm cubes?

- A) 27 B) 54 C) 81 D) 108 E) 216

23.



Siyah Alan (Black Area) = ?
Tüm Alan (All Area)

- A) 1 B) $\frac{2}{1}$ C) $\frac{4}{1}$ D) $\frac{32}{9}$ E) $\frac{17}{32}$

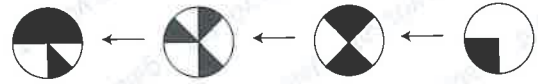
How many cubes are formed if the object above is divided into 1 cm cubes?

- A) 27 B) 54 C) 81 D) 108 E) 216

22.

Aşağıda verilen şekil gruplarının diziliş kuralına uyan sayı grubu aşağıdakilerden hangisidir ?

Find the figure which corresponds to the place indicated by the question mark following the relationship established?



- A) 18, 36, 27, 45
B) 20, 40, 80, 60
C) 12, 24, 60, 36
D) 8, 16, 60, 42
E) 28, 56, 42, 80

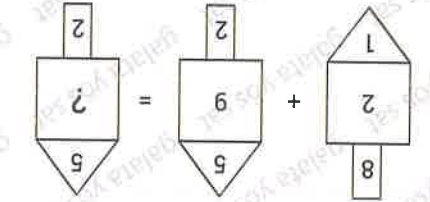
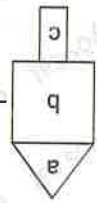
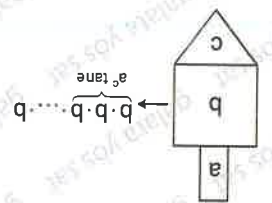
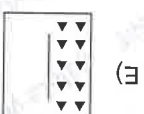
24. $34 = 1$
 $26 = 3$
 $92 = 6$
 $56 = 70 = 24$
 $98 = 48 = ?$

- A) 2 B) 6 C) 100 D) 120 E) 720

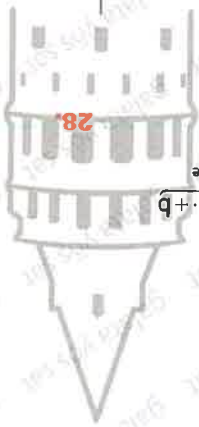
25. 18 27 38 55 85 ?

A) 92 B) 99 C) 117 D) 138 E) 154

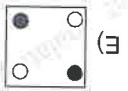
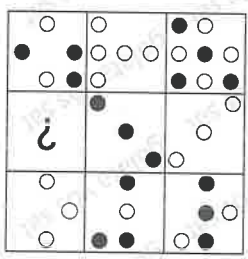
27.



A) 2 B) 5 C) 11 D) 17 E) 34

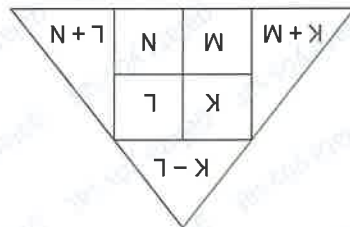


28.

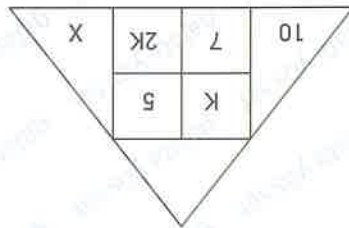


29. ve 30. sorular aşağıdaki tabloya göre cevaplandırılabilir. caktir.

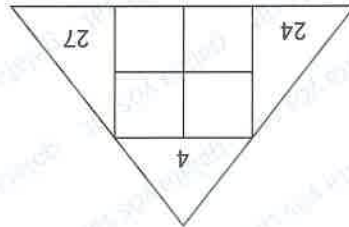
Questions 29 and 30 will be answered according to the following figure.



29.

 $X = ?$

- A) 6 B) 8 C) 9 D) 11 E) 17

 $N-M = ?$

- A) 7 B) 16 C) 15 D) 34 E) 45

30.

1. $\frac{d}{dx} \int f(x) dx = ?$

- A) $f(x)$ B) $f'(x)$ C) $f''(x)$ D) 0 E) 1

2. $\int d[f(x)] = ?$

- A) $f(x)$ B) $f(x)+c$ C) $f'(x)$ D) $f(x)dx$ E) $f'(x)dx$

3. $\int \sqrt{2x+3} dx = ?$

- A) $\frac{1}{3} \sqrt{2x+3} + c$ B) $\frac{3}{1} \sqrt{2x+3} + c$ C) $3 \sqrt{2x+3} + c$ D) $\frac{3}{1} \sqrt{2x+3} + c$ E) $-\frac{1}{3} \sqrt{2x+3} + c$

4. $d \left(\int (x^2 + x) dx \right) = ?$

- A) $x^2 + x$ B) $(x^2 + x) dx$ C) $2x + 1$ D) $(2x + 1) dx$ E) 1

5. $\int (x-1) \cdot f(x) dx = x^2 - 2x = f(x) = ?$

- A) 2
- B) $3x + 3$
- C) $x^2 - x$
- D) $3x^2 - x$
- E) $x^2 + x$

9. $\int (1 - 4x^3 - 2e^x) dx = ?$

- A) $x - 2x^4 - 2e^x + c$
- B) $2x - x^4 - 2e^x + c$
- C) $x - x^4 - 2e^x + c$
- D) $x - x^4 + 2e^x + c$
- E) $x + x^3 + 2e^x + c$

6. $f''(x) = 2$
 $f'(2) = 5$
 $f(2) = 10$
 $= f(1) - f(-1) = ?$

- A) 7
- B) 5
- C) 2
- D) 1
- E) -3

10. $\int \frac{1+a^2}{1+x^2} dx = ?$

- A) $x + a^2x + \tan x + c$
- B) $(1+x^2)(1+a^2) + c$
- C) $(1+a^2) \arctan x + c$
- D) $(1+a^2) \operatorname{arccot} x + c$
- E) $x + c$

7. $\int (3^x - x^3) dx = ?$

- A) $3^x - 3x^2 + c$
- B) $\frac{\ln 3}{3^x} \cdot \frac{x^4}{4} + c$

C) $\frac{\ln 3}{3^x} \cdot \frac{x^2}{2} + c$

D) $\frac{\ln 3}{3^x} + \frac{x^4}{4} + c$

E) $3^x \ln 3 + \frac{x^3}{3} + c$

11. $\int (3x^2 + 1)^4 \cdot 6x \cdot dx = ?$

A) $\frac{6x}{(3x^2 + 1)^5} + c$

C) $\frac{4}{(3x^2 + 1)^4} + c$

B) $\frac{5}{(3x^2 + 1)^5} + c$

D) $(3x^2 + 1)^4 + c$

E) $6x \cdot (3x^2 + 1)^5 + c$

12. $\int 5^{\tan x} \cdot \sec^2 x \cdot dx = ?$

A) $\frac{5^{\tan x}}{\ln x} + c$

C) $\frac{\ln 5}{\tan x} + c$

B) $\frac{5}{5^{\tan x}} + c$

D) $5^{\tan x} + c$

E) $\frac{\ln 5}{5^{\tan x}} + c$

8. $\int 6x^4 - 3x^2 dx = ?$

A) $2x^2 - 3 \ln x + c$

B) $2x^3 - 3 \ln x + c$

D) $3x^3 + 3 \ln x + c$

E) $2x^3 - 3x + c$

C) $4x^3 - 3 \ln x + c$

13. $\int \frac{dx}{\sqrt{9-x^2}} = ?$

- A) $\frac{\sqrt{1-x^2}}{1} + c$
 B) $\arcsin x + c$
 C) $\arcsin\left(\frac{x}{3}\right) + c$
 D) $\arccos\left(\frac{x}{3}\right) + c$
 E) $\arcsin\left(\frac{x}{3}\right) + c$

14. $\int \tan^2 x \, dx = ?$

- A) $x \cdot \tan x + c$
 B) $\tan x + x + c$
 C) $1 - \arctan x + c$
 D) $\tan x - x + c$
 E) $\tan x + c$

15.
$$\begin{cases} x+y=5 \\ y+z=12 \\ x+z=3 \end{cases} \Rightarrow x \cdot (y-z) = ?$$

- A) -4 B) 0 C) 4 D) 8 E) 12

19. $P(x)$, pozitif baş katsayılı bir polinomdur. $P(x)$, is a positive primer polynomial.

$P(P(x)) = 4x - 6 \Rightarrow P(5) = ?$

- A) 5 B) 6 C) 7 D) 8 E) 9

16. $5^x = 3 \Rightarrow \sqrt{\frac{25^{x-1}}{1}} = ?$

- A) -4 B) 0 C) 4 D) 8 E) $\frac{3}{5}$

20. $x^2 + x - 3 = 0$

a: One of the roots of the equation
 denklemnin köklerinden biri a dir.

$\Rightarrow (a-1) \cdot a \cdot (a+1) \cdot (a+2) = ?$

- A) -6 B) -3 C) 3 D) 6 E) 8

18. $\frac{(a-b+1)^2 - (a+b-1)^2}{a \cdot b - a} = ?$

- A) -4 B) -4a C) -a D) a-b E) a-b+4

17. $a > 0$ ve $-1 < \frac{a+b}{a} < 0$

egitsizlikleri veriliyor. / inequalities are given.

I. $a \cdot b < 0$

II. $a^2 + b^2 > 1$

III. $|a+b| < |a-b|$

İfadelerinden hangileri kesinlikle doğrudur ?
 which of the statements are absolutely true?

- A) I B) II C) I ve II D) I ve III E) II ve III

21. f ile g fonksiyonları / f and g are functions.

$$f(x) = x - 2 \text{ ve } g(x) = -x + 1$$

$$(f \circ g)(a) = (g \circ f)(a)$$

a kaçtır ? / What is a?

- A) -2 B) $-\frac{1}{2}$ C) -1 D) $\frac{1}{2}$ E) 2

22. $\log_2 a + \log_2 b = 2$, $a - b = 3 \Rightarrow a + b = ?$

- A) 3 B) 4 C) 5 D) 6 E) 7

23. $z = 8i$ karmaşık sayısının küpköklerinden bir aşağıdakilerden hangisidir ?

Which of the following is the cube roots of the complex number $z = 8i$?

- A) $2 \cdot \text{cis} 270^\circ$ B) $2 \cdot \text{cis} 240^\circ$ C) $2 \cdot \text{cis} 120^\circ$

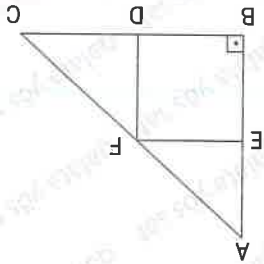
- D) $2 \cdot \text{cis} 90^\circ$ E) $\text{cis} 150^\circ$

24. $\cos 40^\circ + \cos 80^\circ - \cos 160^\circ = ?$

- A) 0 B) $\sin 20^\circ$ C) 1 D) $\cos 40^\circ$ E) $2 \cos 20^\circ$

$|AB| = 10$
 $|BC| = 6$

27.



Yukarıdaki şekilde BDFE dikdörtgeninin alanının en büyük değeri kaçtır ?

What is the largest value of the area of the BDFE rectangle in the figure above?

- A) 30 B) 15 C) 20 D) 16 E) 24

28. $y = \frac{x}{4}$ eğrisinin orijine olan en yakın noktasının uzaklığı kaç birimdir ?

What is the distance of the closest point of the curve $y = \frac{x}{4}$ to the origin?

- A) 1 B) $\sqrt{2}$ C) $\sqrt{3}$ D) $3\sqrt{2}$ E) $2\sqrt{2}$

26. $F(x,y) = \ln(x^2 + y^2) = 0 \Rightarrow F'(2,3) = ?$

- A) $\frac{4}{9}$ B) 2 C) $\frac{9}{4}$ D) $-\frac{1}{2}$ E) $-\frac{3}{2}$

Fonksiyon $x = -2$ noktasında sürekli ise $a + b$ kaçtır ?
If the function is continuous at the point $x = -2$, what is $a + b$?

$$25. f(x) = \begin{cases} x^2 - 4, & x < -2 \\ a, & x = -2 \\ \log_2(x+b), & x > -2 \end{cases}$$

29. $f^{-1}(a) = 3, (f^{-1})'(a) = \frac{5}{3}$

$\Rightarrow f'(3) = ?$

- A) $\frac{3}{5}$ B) 3 C) 5 D) 1 E) 0

2.

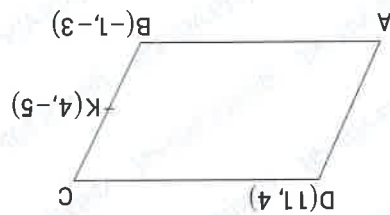
A(4,8) B(8,-14) [AB]

doğru parçasının orta noktasının orijine uzaklığı nedir ?
[AB] to the origin?
What is the distance of the midpoint of the line segment

- A) 3 B) $3\sqrt{5}$ C) 4 D) $4\sqrt{5}$ E) 5

3.

ABCD paralelkenar
|KC| = 3|BK|
A(?,?) = ?

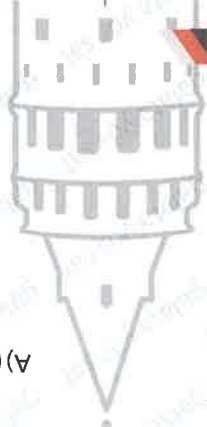


- A) (-9, 12) B) (9, 11) C) (9, -12) D) (-9, -12) E) (-9, 14)

30. $f(x) = \tan x$ fonksiyonun $x = a$ noktasındaki türevi asgüdüklilerden hangisi ile ifade edilir ?
The derivative of the function $f(x) = \tan x$ at the point $x = a$ is expressed by which of the following?

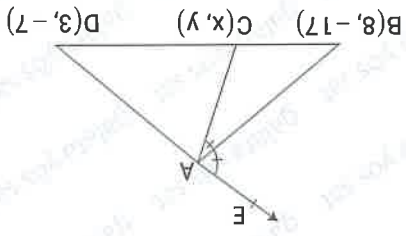
- A) $\lim_{x \rightarrow a} \frac{\tan x - \tan a}{x - a}$ B) $\lim_{x \rightarrow a} \frac{\tan x + \tan a}{x}$ C) $\lim_{x \rightarrow a} \frac{\tan x + \tan a}{x + a}$ D) $\lim_{x \rightarrow 0} \frac{\tan h - \tan a}{h}$ E) $\lim_{x \rightarrow 0} \frac{\tan(x+h) + \tan a}{h}$

Geometri Geometry



4.

[AB] dış açıortay
|AC| = 3|AD|
C(x,y) koordinatları
garpımı kaçtır ?
What is the product of C(x,y) coordinates?

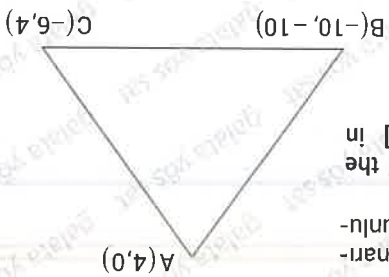


- A) -44 B) 44 C) 66 D) 55 E) -55

1. $A\left(\frac{2n}{m}, m^3 \cdot n^4\right)$ noktası analitik düzlemde III. bölgede $\Rightarrow B(m^2 + n, m - n)$ hangi bölgededir ?
Point A is in the 3rd area in the analytical plane. where is point B?

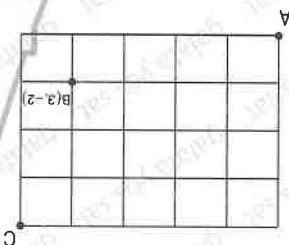
- A) I. B) II. C) III. D) IV. E) orjin

5. A(7, 24) noktasının x eksenine uzaklığı / distance to the x axis = ?
orjine uzaklığı / distance to origin = ?
- A) $\frac{1}{5}$ B) $\frac{24}{7}$ C) $\frac{24}{25}$ D) $\frac{1}{25}$ E) $\frac{7}{25}$



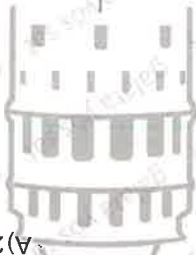
- A) $2\sqrt{5}$ B) $3\sqrt{5}$ C) $4\sqrt{5}$ D) 15 E) 20

6. Yandaki analitik düzlemde birim kareler ayrılmıştır. A ve C noktalarının koordinatları birim kareler ayrılmıştır. A koordinatları ayrılmıştır. The analytical plane is divided into unit squares. What is the sum of the coordinates of A and C points?



9. Analitik düzlemde ağırlık merkezinin koordinatları $G(-3, 11)$ olan üçgenin köşe koordinatları toplamı kaçtır?
What is the sum of the corner coordinates of the triangle with the coordinates of the center of gravity $G(-3, 11)$ on the analytical plane?

- A) 24 B) 25 C) 26 D) 27 E) 28

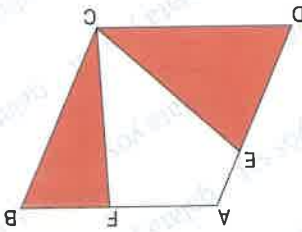


- A) 1 B) 2 C) 3 D) 4 E) 5

10. $A(5, 1)$ B(4, 0) C(-3, a) olan üçgenin alanı ($a > 0$) $A(\triangle ABC) = 14 \text{ cm}^2$ olduğuna göre $a = ?$
- A) 20 B) 21 C) 24 D) 25 E) 30

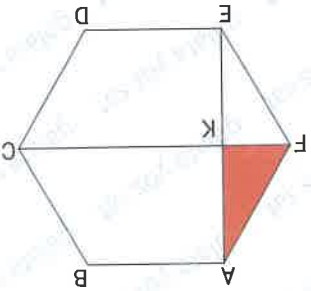
7. $A(-4, 9)$ B(8, 25) C $\in [AB]$ $|BC| = 3|AC|$ olduğuna göre C noktasının koordinatları toplamı kaçtır?
What is the sum of the coordinates of the C point?
- A) 10 B) 11 C) 12 D) 13 E) 14

11. ABCD eşkenar dörtgen
 $|AF| = 2|FB|$
 $|DE| = 3|AE|$
 $A(ABCD) = 48 \text{ cm}^2$
 Taralı alan toplamı = ?
 Shaded area sum = ?



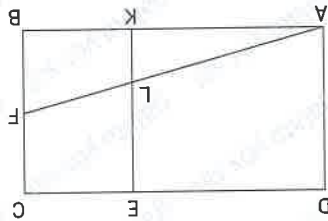
- A) 20 B) 26 C) 28 D) 30 E) 32

14. ABCDEF düzğün altigen
 ABCDEF smooth hexagon
 $[FC], [AE]$ köşegen
 $[FC], [AE]$ diagonal
 $A(\Delta KF) = 6\sqrt{3} \text{ br}^2$
 $G\ddot{e}vre(ABCDEF) = ?$
 What is the perimeter of the hexagon?



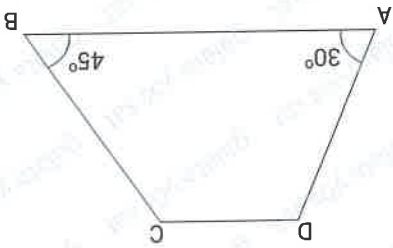
- A) $10\sqrt{3}$ B) $12\sqrt{3}$ C) $20\sqrt{3}$ D) $24\sqrt{3}$ E) $30\sqrt{3}$

12. ABCD dikdörtgen
 $[EK] \parallel [BC]$
 $2|AK| = 3|BK|$
 $|BF| = 5$
 $|CF| = 4$
 $|EL| = ?$



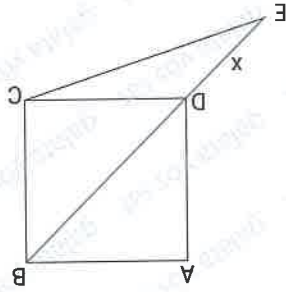
- A) 3 B) 4 C) 5 D) 6 E) 7

15. ABCD yamuk
 $m(\widehat{DAB}) = 30^\circ$
 $m(\widehat{ABC}) = 45^\circ$
 $|AD| = 14$
 $|BC| = ?$



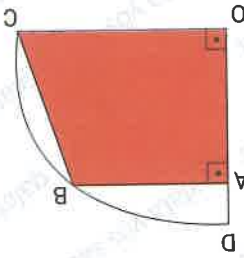
- A) 7 B) $7\sqrt{2}$ C) 14 D) $14\sqrt{2}$ E) 16

13. ABCD kare
 $|BD| = |CE| = 6$
 $|DE| = x = ?$

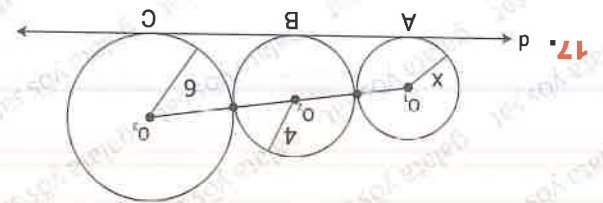


- A) $3\sqrt{3} - 3$ B) $\sqrt{3}$ C) 3 D) $3\sqrt{3} + 3$ E) $3\sqrt{3} + 6$

16. O: çeyrek çemberin merkezi
 $|DA| = 1$
 $|OC| = 5$
 $A(ABCO) = ?$



- A) 14 B) 24 C) $\pi 8$ D) 20 E) 16



Şekilde O_1, O_2, O_3 merkezli çemberler birbirine ve d doğrusuna teğet
In the figure, circles with centers O_1, O_2, O_3 are
tangent to each other and to the d line.

$$r_1 = x$$

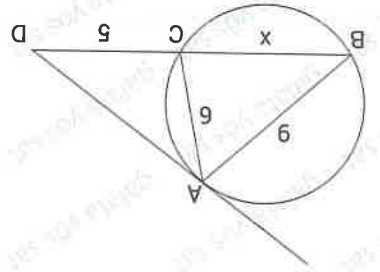
$$r_2 = 4$$

$$r_3 = 6$$

$$\Rightarrow r_1 = x = ?$$

- A) 2 B) $\frac{3}{8}$ C) 3 D) $\frac{3}{16}$ E) 4

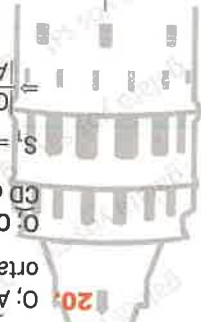
[DA çembere A noktasında teğettir.
[DA is tangent to the circle at point A.
 $|BC| = x = ?$



18.

- A) 5 B) $\frac{2}{15}$ C) 8 D) $\frac{4}{25}$ E) $\frac{4}{45}$

20. O: \overline{AB} ve \overline{CD} daire dilimlerinin ortak merkezi
O: Common center of \overline{AB} and \overline{CD} circle slices
 $S_1 = S_2$ olduğuna göre
 $\frac{|OA|}{|AC|} = ?$



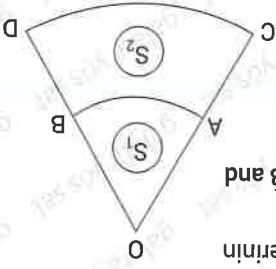
$$D) \frac{3}{1}$$

$$A) \sqrt{2} - 1$$

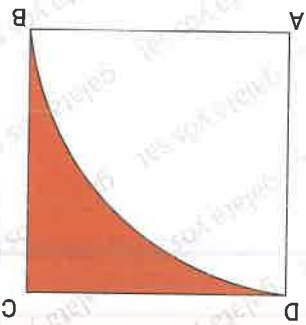
$$B) \sqrt{2}$$

$$E) \frac{1}{4}$$

$$C) \sqrt{2} + 1$$



19. ABCD karesinin içine A merkezli çeyrek çember yerleştirilmiştir.
A quarter circle with center A is placed inside the ABCD square.
 $\hat{C}(ABCD) = 24$ br / Perimeter olduğuna göre boyalı alan? Shaded area=?



$$A) 36$$

$$B) 36 - 9\pi$$

$$C) 36 - \frac{9\pi}{2}$$

$$E) 36\pi$$

$$D) 36 + 9\pi$$

Başarıya Götüren



Mat	Problem Solving / Problem	Mat	Problem / Problem
Geo	Problem / Problem	Geo	Problem / Problem
Mat	Problem / Problem	Mat	Problem / Problem

KTS-25

Mat	Integral / Integral	Mat	Integral / Integral
Geo	3 Boyutlu Cisim / 3D Object	Geo	3 Boyutlu Cisim / 3D Object
Geo	Doğru Analizi / Right Analytics	Geo	Doğru Analizi / Right Analytics

Mat	Integral / Integral	Mat	Türev / Derivative
Geo	Şekli Karşılaştırma	Geo	Farklı Olan Bulma
Geo	Şekil Karşılaştırma	Geo	Farklı Olan Bulma

Mat	Logaritma Türümler	Mat	Özet Tanımlı Fonksiyonlar
Geo	Şekli İlgili Tablo	Geo	Şekli İlgili Tablo
Geo	Şekli İlgili Tablo	Geo	Şekli İlgili Tablo

Mat	Karmaşık Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry
Geo	Şekli İlgili Tablo	Geo	Şekli İlgili Tablo
Geo	Şekli İlgili Tablo	Geo	Şekli İlgili Tablo

Mat	Modüler Aritmetik	Mat	Polinom / Polynomial
Geo	Küp Sayma Tamamlama	Geo	Çizim / Graphics
Geo	Küp Sayma Tamamlama	Geo	Çizim / Graphics

Mat	İşlem / Operation	Mat	Kartzyen Çarpım ve Fonksiyonlar
Geo	Denklem Eşleştire / Equation Matching	Geo	Eşleştirme / Matching
Geo	Denklem Eşleştire / Equation Matching	Geo	Eşleştirme / Matching

Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers
Geo	Sayı Bağıntıları / Number Relations	Geo	Tablolar / Tables
Geo	Sayı Bağıntıları / Number Relations	Geo	Tablolar / Tables

Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Çarpma Aynası / Factorization
Geo	Basit Eşitsizlik ve Mutlak Değer	Geo	İkizkenar ve Eşkenar Üçgen
Geo	Basit Eşitsizlik ve Mutlak Değer	Geo	İkizkenar ve Eşkenar Üçgen

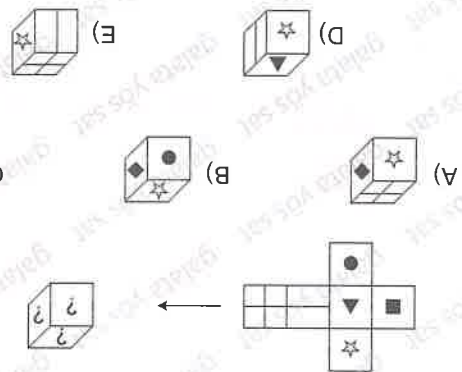
Mat	İşlem Üçüncü ve Rasyonel Sayılar	Mat	Birinci Dereceden Denklem
Geo	Şifreler / Passwords	Geo	Sayı Düzenli / Number patterns
Geo	Şifreler / Passwords	Geo	Sayı Düzenli / Number patterns

Siyah Black	Mor Purple	Sarı Yellow	Kırmızı Red	Mavi Blue
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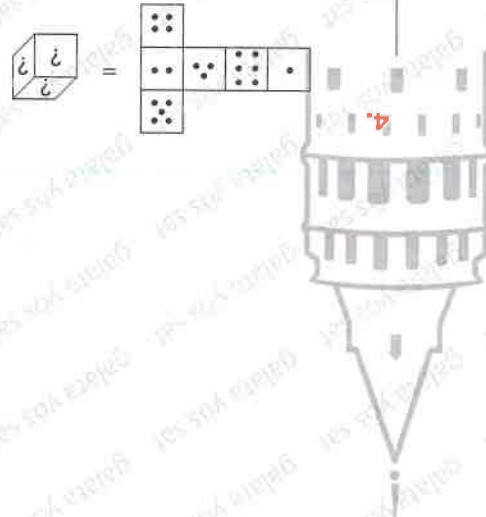
Yukarıdaki şekilde bir küpün açılımı verilmiştir. Buna göre aşağıda verilen yüzeylerin hangileri birbirine paraleldir ?

In the figure above, the unfolding of a cube is given. Accordingly, which of the following surfaces are parallel to each other?

- A) Beyaz-Mor
White - Purple
- B) Sarı-Kırmızı
Yellow - Red
- C) Siyah-Mavi
Black - Blue
- D) Sarı-Mavi
Yellow - Blue
- E) Siyah - Beyaz
Black - White



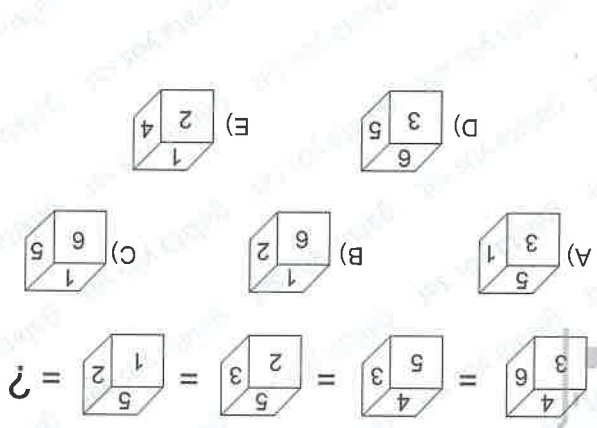
- A) A) Siyah-Mavi
Black - Blue
- B) B) Sarı-Kırmızı
Yellow - Red
- C) C) Siyah-Mavi
Black - Blue
- D) D) Sarı-Mavi
Yellow - Blue
- E) E) Siyah - Beyaz
Black - White



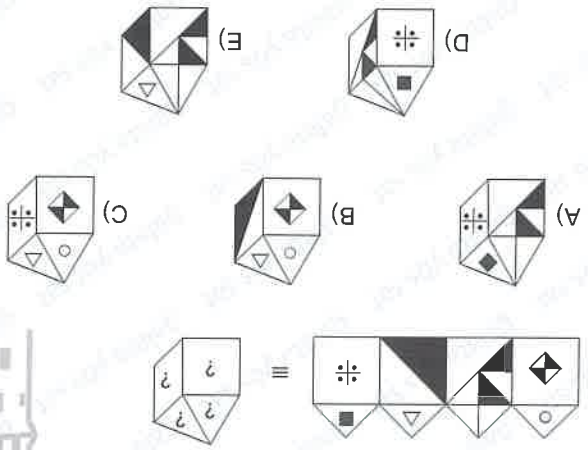
- A) A) Beyaz-Mor
White - Purple
- B) B) Sarı-Kırmızı
Yellow - Red
- C) C) Siyah-Mavi
Black - Blue
- D) D) Sarı-Mavi
Yellow - Blue
- E) E) Siyah - Beyaz
Black - White



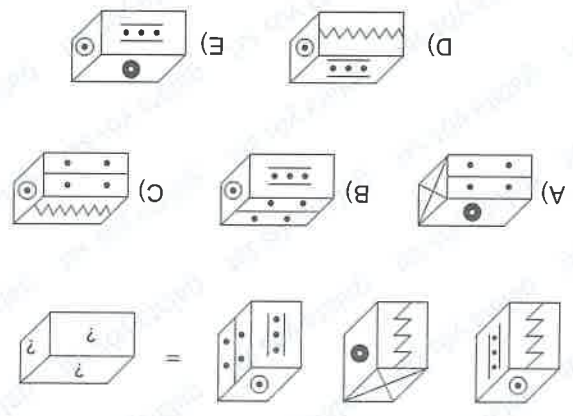
3.



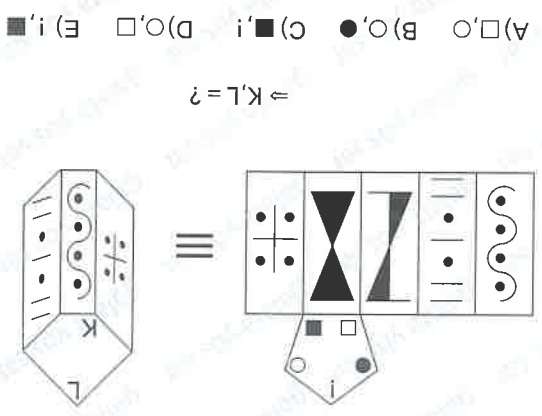
8.



6.

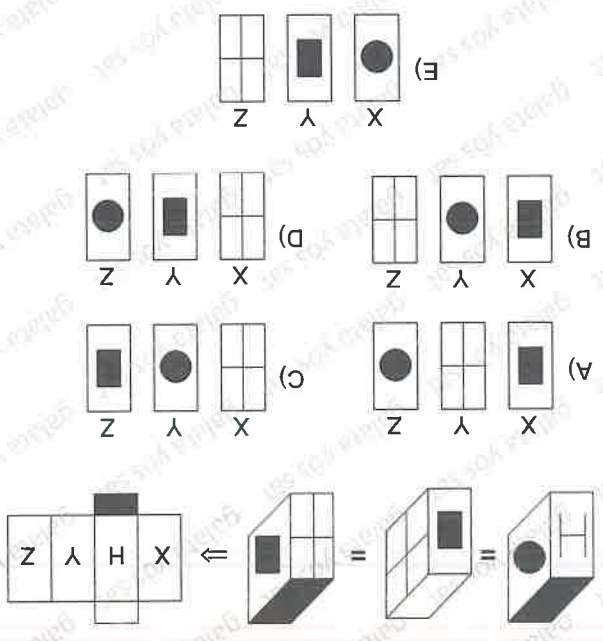
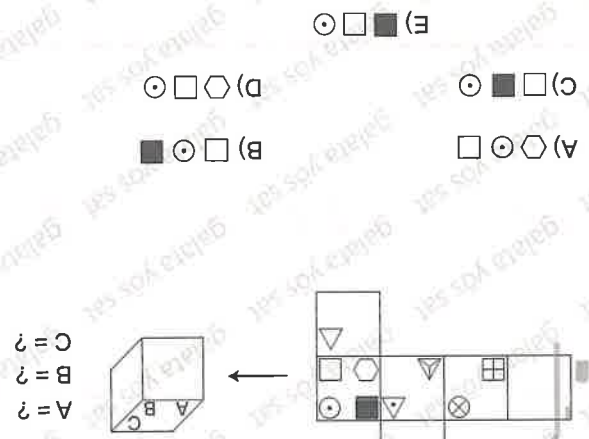
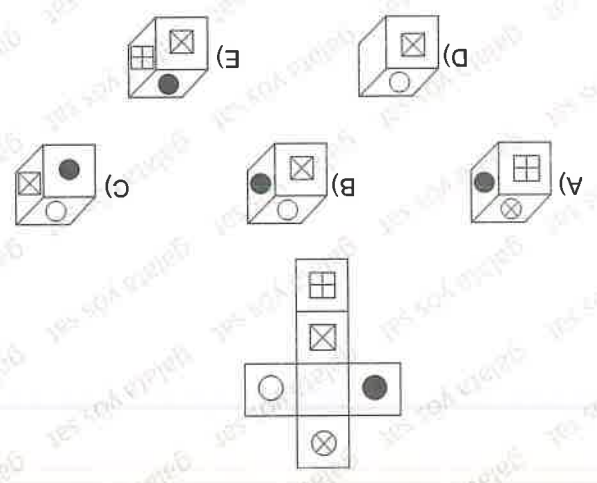
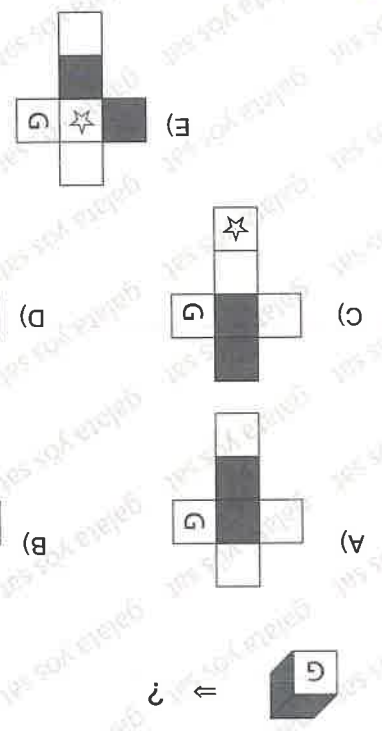


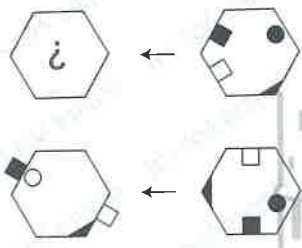
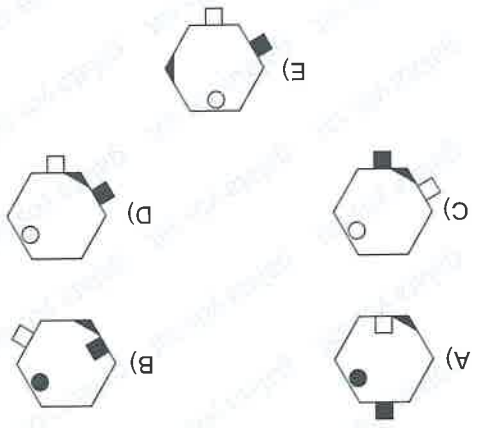
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5.

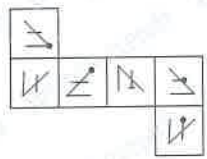
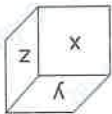
A) □, ○ B) ○, ● C) ■, i D) ○, □ E) i, ■
 ⇒ K, L = ?



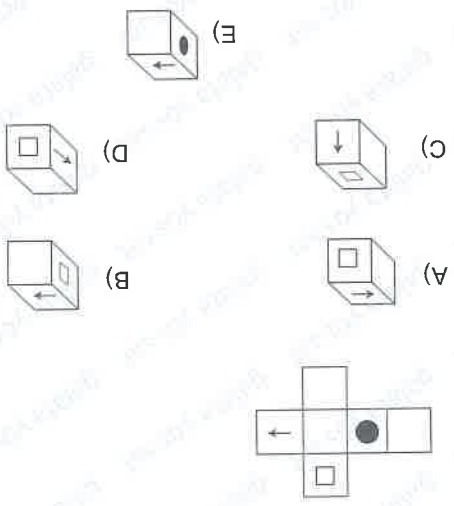
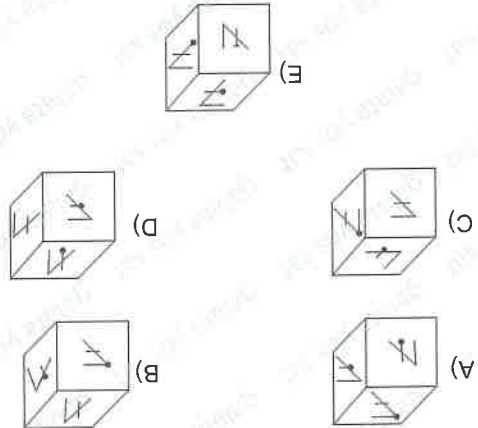


16.

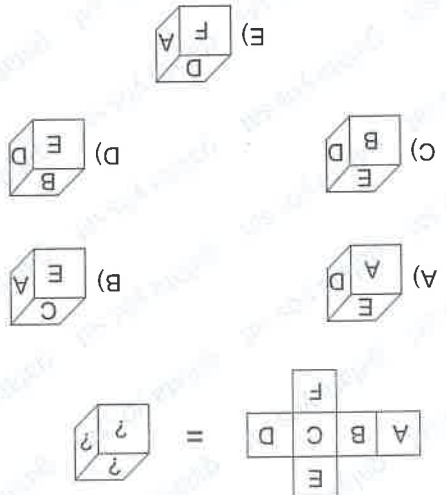
z = ?
y = ?
x = ?



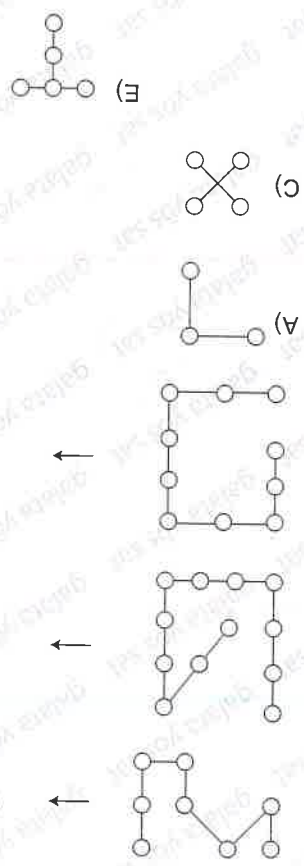
14.



15.



13.

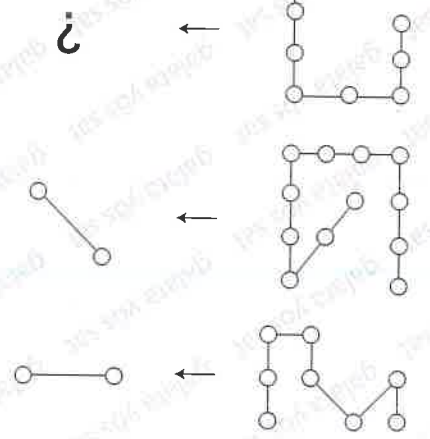


17. CORONA → ANOBOS

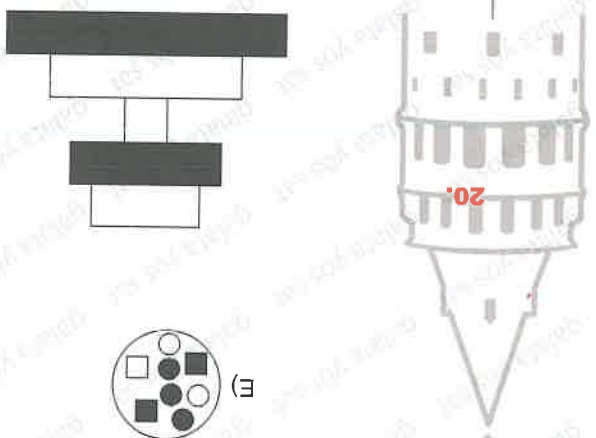
EVDKAL → ?

- A) LAKEDVE
- B) LAKEDVA
- C) JAKEDVA
- D) JAKEDVE
- E) JAKEDVA

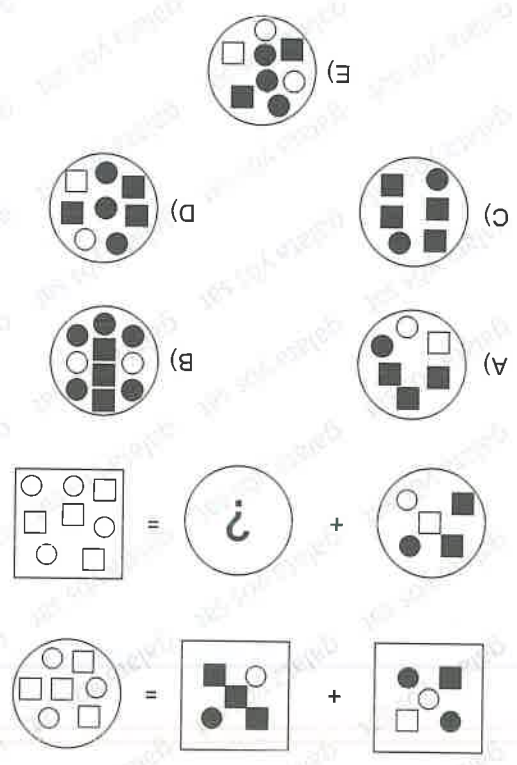
18.



Silindir parçalarından oluşan seklin üstten görünümünü aşağıdakilerden hangisidir ?
Which of the following is the top view of the figure consisting of cylinder parts?



- A)
- B)
- C)
- D)
- E)



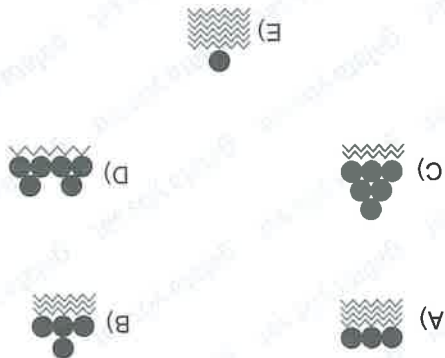
19.

23. 1) ★ ■ ● ▲ ▽ ▽ ▽ ▽
 2) ▲ ★ ■ ● ▽ ▽ ▽ ▽
 3) ▽ ▽ ▽ ▽ ★ ■ ● ▲ ▽ ▽ ▽ ▽

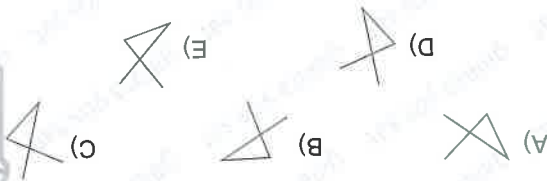
Yukarıdaki şekil dizisi bir kurala göre dizildiğine göre, 9. şekil dizisi aşağıdakilerden hangisidir?
 Since the sequence of figures is arranged according to a rule, which of the following is the 9th figure?

- A) ▽ ▽ ▽ ▽ ★ ■ ● ▲ ▽ ▽ ▽ ▽
 B) ★ ▲ ▽ ▽ ▽ ▽ ★ ■ ● ▽ ▽ ▽ ▽
 C) ★ ■ ● ▽ ▽ ▽ ▽ ▽ ▽ ▽ ▽
 D) ★ ■ ● ▽ ▽ ▽ ▽ ▽ ▽ ▽ ▽
 E) ▽ ▽ ▽ ▽ ★ ■ ● ▲ ▽ ▽ ▽ ▽

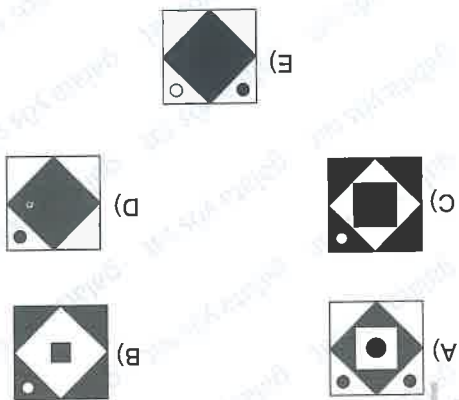
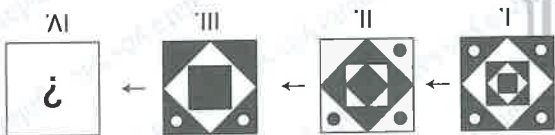
21. Aşağıdakilerden hangisi diğerlerinden farklıdır?
 Which of the following is different from the others?



22. Aşağıdakilerden hangisi diğerlerinden farklıdır?
 Which of the following is different from the others?



IV şekil aşağıdakilerden hangisidir?



1	M	49	343
4			
K	27	81	243
16			
25	32	37	L

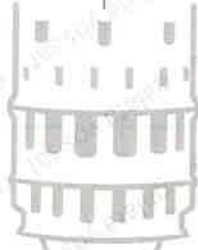
26.

- A) 12 B) 10 C) 8 D) 7 E) 6

$$\Rightarrow K+L = ?$$

$$\begin{aligned} AT &= R \\ LK &= S \\ RI &= L \\ ATIK &= ? \end{aligned}$$

- A) R B) S C) L D) A E) K



28. $A_2 C_3 E_5 \rightarrow D_4 F_3 H_7 \rightarrow F_6 J_2 L_8 \rightarrow ?$
- A) $J_7 P_2 S_9$ B) $J_8 P_3 S_{11}$ C) $J_9 P_2 S_{11}$ D) $J_7 R_3 T_9$ E) $J_8 R_3 T_{11}$

- A) 17 B) 25 C) 32 D) 43 E) 45

Yukarıdaki tabloda soru işaretinin yerine hangi sayı gelmelidir?
Which number should replace the question mark in the table above?

15	43	?	4
13	15	24	3
11	10	34	4
9	19	26	5

27.

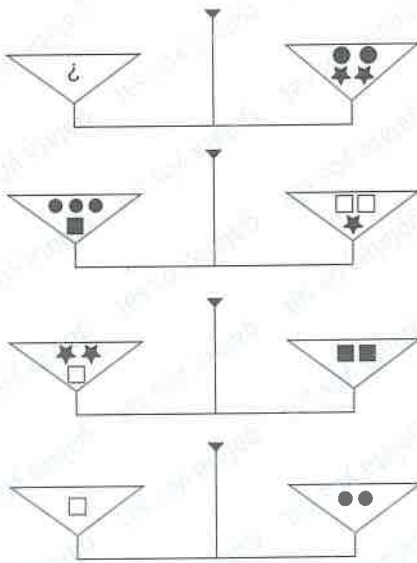
S	S	2	S
K	K	K	K
R	R	R	R
E	E	E	E

25.

Yukarıdaki tablo belirli bir kurala göre hazırlanmıştır. Tablodakurula uymayan şeklin yerine gelecek şekil aşağıdakilerden hangisidir?
The table above has been prepared according to a rule. Which of the following is the figure that will replace the figure that does not obey the rule in the table?

- A)  B)  C)  D)  E) 

30.



- A) □ □ □
 B) ■ ■ □
 C) ★ □ □
 D) ■ ■ ■
 E) ■ ■ ■

1. $\int_3^{-2} (x^2 + x - 2) dx = ?$

- A) $\frac{6}{25}$ B) $\frac{2}{9}$ C) $\frac{3}{13}$ D) 4 E) 5

2. $f(x) = \begin{cases} x+2, & x \leq 2 \\ -x, & x > 2 \end{cases}$
 $\int_3^1 f(x) dx = ?$

- A) 1 B) 2 C) 4 D) 6 E) 8

3.

$\int_{\frac{\pi}{2}}^0 (\sin x - \cos x) dx = ?$

- A) -2 B) -1 C) 0 D) 1 E) 2

4. f, [a, b] aralığında sürekli ve türevlenebilir bir fonksiyon olmak üzere, f being a continuous and differentiable function in the interval [a, b],

$\int_b^a f(x) \cdot f'(x) dx = ?$

- A) $f(b) - f(a)$
 B) $[f(b)]^2 - [f(a)]^2$
 C) $[f(b)]^2 + [f(a)]^2$
 D) $f(b) + f(a)$
 E) $[f(b)]^2 - [f(a)]^2$

5.

$\int_1^2 \frac{e^x}{x^2} dx$ integralinde $\frac{1}{x} = u$ dönüşümü yapırsa hangi integral elde edilir?

what integral is obtained if $\frac{1}{x} = u$ is transformed in

A) $\int_1^2 \ln u \cdot u du$

B) $\int_1^2 \frac{e^u}{2} du$

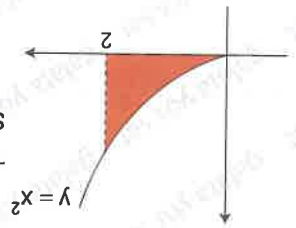
C) $\int_1^2 e^u du$

D) $-\int_1^2 e^u du$

E) $\int_1^2 \ln u du$

6. $F(x) = \int_{x^2}^x (t+4) dt = F'(x) - ?$

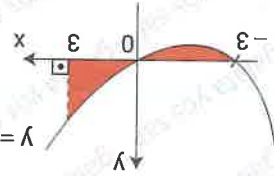
- A) $2x^2 + 7x - 2$
 B) $2x^3 + 7x - 4$
 C) $2x^3 + 5x - 4$
 D) $x^3 + 5x - 4$
 E) $2x^3 + 3x - 4$



Taralı bölgenin alanı nedir ?
 Shaded area = ?

- A) $\frac{3}{5}$
 B) $\frac{3}{8}$
 C) $\frac{3}{7}$
 D) $\frac{3}{1}$
 E) 3

8. Taralı bölgenin alanı kaçtır ?
 Shaded area = ?



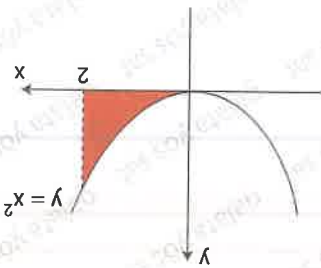
- A) 30
 B) 27
 C) 45
 D) 21
 E) 18

9. $y = 2x^2 - x + 2$ eğrisi ile $y = 3x + 2$ doğrusu arasında kalan kapalı bölgenin alanı kaçtır ?

What is the area of the closed region between the $y = 2x^2 - x + 2$ curve and the line $y = 3x + 2$?

- A) $\frac{3}{4}$
 B) $\frac{5}{3}$
 C) 2
 D) $\frac{7}{3}$
 E) $\frac{8}{3}$

10.



Yükarıdaki şekilde verilen taralı bölgenin x eksenine etrafında 360 dönebilir şekilde oluşan cismin hacmi kaç birim küptür ?
 What is the volume of the object formed by rotating the shaded area given in the figure above 360 degrees around the x-axis?

- A) $\frac{5}{26\pi}$
 B) $\frac{5}{28\pi}$
 C) 10π
 D) 32π
 E) 5π

11.

$y = x^2$ eğrisi ile $y = x$ doğrusu arasında kalan kapalı bölgenin x eksenine etrafında 360 dönebilir şekilde oluşan cismin hacmi kaç birim küptür ?
 What is the volume of the solid formed by rotating the closed region between the $y = x^2$ curve and the $y = x$ line 360 degrees around the x-axis?

- A) $\frac{3}{2\pi}$
 B) $\frac{2}{\pi}$
 C) $\frac{3}{\pi}$
 D) $\frac{4}{\pi}$
 E) $\frac{15}{2\pi}$

12.

$$\frac{1}{\frac{1}{79} + \frac{1}{2} + \frac{1}{3} - \frac{1}{6}} = ?$$

- A) $\frac{79}{2}$
 B) $\frac{7}{1}$
 C) $\frac{17}{7}$
 D) $\frac{7}{15}$
 E) $\frac{15}{7}$

13. $x + 1, y - 2, 2z + 3$

sayılar küçükten büyüğe ardışık üç doğal sayıdır.

The numbers x, y, z are three consecutive natural numbers smallest to largest.

$$x + y = 144$$

olduğuna göre, z kaçtır ? / What is z ?

- A) 29
 B) 33
 C) 35
 D) 38
 E) 41

14. $f(x) = (x^2 + 1)(x^4 + 1)(x^8 + 1)$

$\Rightarrow 3 \cdot f(2) = ?$

- A) $2^{16} + 2^8$
- B) $2^8 + 1$
- C) $2^8 - 1$
- D) $2^{16} - 1$
- E) $2^{16} + 1$

15. $A = \{-2, 8\}$ ve $B = \{3, 12\}$

$\Rightarrow A' \cap B = ?$

- A) $(-\infty, -2)$
- B) $(-2, 3)$
- C) $(3, 8)$
- D) $(8, 12)$
- E) $[8, 12)$

16. $\frac{a\sqrt{b} + b\sqrt{a}}{\sqrt{a} + \sqrt{b}} = 2, a - b = 3$
 $\Rightarrow a^2 + b^2 = ?$

- A) 17
- B) 13
- C) 8
- D) 5
- E) 1

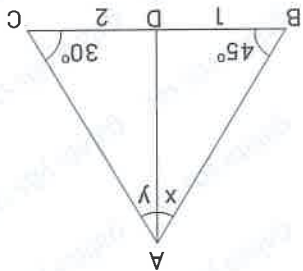
17. $\sqrt{-1} = i, z = 5 - 12i$

$\Rightarrow \sqrt{z}$ hangisi olabilir? / Which one could \sqrt{z} be?

- A) $3 - 2i$
- B) $3 + 2i$
- C) $-3 - 2i$
- D) $2 + 3i$
- E) -3

18. $\log x = 8 \Rightarrow \log \sqrt[4]{x} + \log \sqrt{x} - \log \sqrt[8]{x} = ?$

- A) 10
- B) 8
- C) 6
- D) 4
- E) 2



$\frac{\sin x}{\sin y} = ?$

- A) $\frac{4}{\sqrt{2}}$
- B) $\frac{\sqrt{2}}{2}$
- C) $\sqrt{2}$
- D) $2\sqrt{2}$
- E) $4\sqrt{2}$

20.

$\log^{\frac{3}{2}} x < \log^{\frac{3}{2}} (4 - x)$
 $\log_6 (2x - 1) > \log_6 (x + 5)$

esitsizlik sistemini saglayan kac tane x tam sayi vardir?
 How many integers x are there that satisfy the system of inequality?

- A) 4
- B) 3
- C) 2
- D) 1
- E) 0

21. $0 < x < \frac{\pi}{4}, 0 < y < \frac{\pi}{2}$

$\Rightarrow \lim_{x \rightarrow \frac{\pi}{4}} \frac{\tan(2x + y) + \cot(4x + y)}{\sin(x + \frac{\pi}{3})} = ?$

- A) $-2\cot y$
- B) 1
- C) $-\cot y$
- D) $2\tan y$
- E) 0

22. f türevlenebilir bir fonksiyon olsun, f turevlenilebilir bir fonksiyon olsun,

$$f(x+y) - f(x) + f(y) + 3xy$$

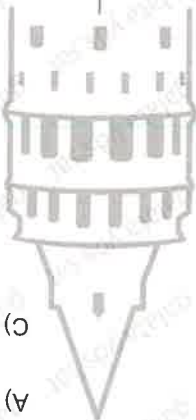
$$f'(0) = 2 = f'(2) = ?$$

- A) 2 B) 5 C) 6 D) 7 E) 8

23. $y = 2u+1$, $u = t^2 + t$, $t = x^3 - x$

$$\Rightarrow \frac{dy}{dx} \Big|_{x=-1} = ?$$

- A) 8 B) 4 C) 2 D) 1 E) 0



27. $\int x \cdot e^{2x} dx = ?$

- A) $\frac{1}{4} e^x (2x+1) + c$
 B) $e^{2x} (2x-1) + c$
 C) $4 \cdot e^{2x} (2x-1) + c$
 D) $\frac{7}{1} e^{2x} (2x-1) + c$
 E) $\frac{4}{1} e^{2x} (2x-1) + c$

E) $\int u \cdot v - \int u dv = ?$

- A) $\int u \cdot dv - \int u dv$
 B) $\int u \cdot v - \int u dv$
 C) $\int u \cdot v - \int v du$
 D) $\int u \cdot v + \int v du$

26. $\int u dv = ?$

- A) $\frac{3}{1} \int \cos dy$
 B) $\frac{3}{1} \int \frac{dy}{\cos y}$
 C) $3 \int \cos^2 y dy$
 D) $\frac{3}{1} \int \sin^2 y dy$
 E) $\int 3 \cdot \sin y \cos^2 y dy$

25. $\int \frac{dx}{(1+9x^2)\sqrt{1+9x^2}}$ integralinde $3x = \tan y$ dönüşümü uygulanırsa aşağıdaki integrallerden hangisi elde edilir?

When the transform is applied, which of the following integrals are obtained?

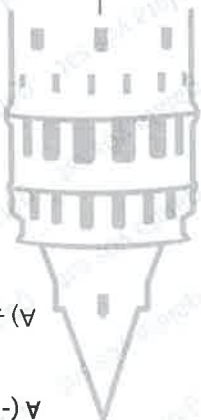
1. Analitik düzlemde x eksenine pozitif yönde 150° 'lik açı yapan doğrunun eğimi $\frac{6}{\sqrt{3}}k+12$ ise $k = ?$
 If the slope of the line making a positive angle of 150° with the x-axis on the analytical plane is $\frac{6}{\sqrt{3}}k+12$, $k = ?$

- A) $-2-24\sqrt{3}$ B) $-2+4\sqrt{3}$ C) $4-2\sqrt{3}$ D) $-4-2\sqrt{3}$ E) $\sqrt{3}+4$

2.

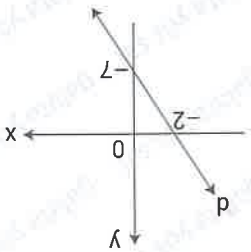
A(-3, 4), B(7, 3) noktalarından geçen doğrunun eğimi nedir?
 What is the slope of the line passing through the points A(-3,4), B(7, 3)?

- A) $\frac{1}{10}$ B) $-\frac{1}{10}$ C) $\frac{5}{3}$ D) $-\frac{5}{3}$ E) $\frac{5}{1}$



3.

d doğrusunun denklemi nedir?
 What is the equation of the line d?



- A) $7x-2y+14=0$ B) $7x-2y-14=0$ C) $-7x-2y-14=0$ D) $-7x-2y+14=0$ E) $2x-2y+14=0$

28. $\int \frac{x^2-x-6}{1} dx = ?$

- A) $\frac{5}{1} \ln \left| \frac{x-3}{x+1} \right| + c$
 B) $\frac{5}{1} \ln \left| \frac{x+3}{x-2} \right| + c$
 C) $5 \ln \left| \frac{x-3}{x+3} \right| + c$
 D) $5 \ln \left| \frac{x+3}{x+3} \right| + c$
 E) $\frac{5}{1} \ln \left| \frac{x-3}{x+2} \right| + c$

29.

$\int \frac{x^3+3}{x^3+3} dx = ?$

- A) $\frac{3}{x^3} + \frac{2}{x^2} + x - 2 \ln|x+1| + c$
 B) $\frac{3}{x^3} + \frac{2}{x^2} + x + \ln|x+1| + c$
 C) $x^2 - x^2 + x + 2 \ln|x+1| + c$
 D) $\frac{3}{x^3} - \frac{2}{x^2} + x + 2 \ln|x+1| + c$
 E) $\frac{3}{x^3} - \frac{2}{x^2} + 2x - \ln|x+1| + c$

30. $\int \cos 2x \cdot \sin 4x dx = ?$

- A) $\frac{1}{\sin 6x} \cdot \frac{1}{\sin 2x} + c$
 B) $\frac{1}{\cos 7x} \cdot \frac{1}{\cos x} + c$
 C) $\frac{1}{\cos 6x} \cdot \frac{1}{\cos 2x} + c$
 D) $\frac{1}{-\cos 6x} \cdot \frac{1}{\cos 2x} + c$
 E) $\cos 6x - \cos 2x + c$

6. A) 20 B) 22 C) 24 D) 26 E) 28

What is the area between the line $4x - 12y + 48 = 0$ and the axes?
 doğru ve eksenler arasında kalan bölgenin alanı nedir?
 $4x - 12y + 48 = 0$

9.

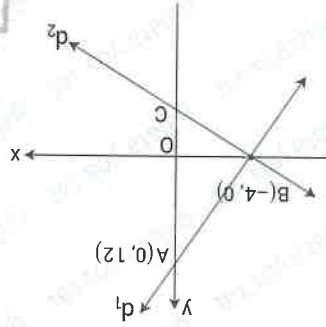
- A) $5x + 3y - 44 = 0$
 B) $5x - 3y + 44 = 0$
 C) $-5x - 3y + 44 = 0$
 D) $5x + 3y + 44 = 0$
 E) $3x + 3y - 44 = 0$

A(-4, -8) noktasından geçen ve $3x - 5y + 21 = 0$ doğrusuna dik olan doğrunun denklemi nedir?
 A(-4, -8) and perpendicular to the line $3x - 5y + 21 = 0$?
 What is the equation for the line passing through the point

8.

- A) $5x - 2y + 16 = 0$
 B) $5x - 2y + 19 = 0$
 C) $-5x - 2y - 19 = 0$
 D) $2y - 5x + 19 = 0$
 E) $2y - 5x + 16 = 0$

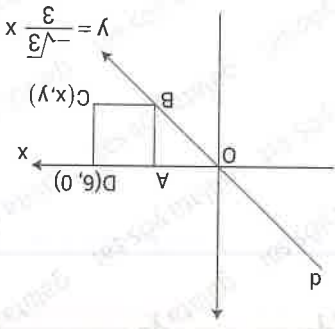
$2y - 5x + 4 = 0$ doğrusuna paralel olan ve A(-2, 3) noktasından geçen doğru denklemi nedir?
 What is the equation of the line parallel to the line $2y - 5x + 4 = 0$ and passing through the point A(-2, 3)?



What is the equation of the line d_2 ?
 d_2 doğrusunun denklemi nedir?
 $|4A| = 3|OC|$

7.

- A) $(6, 3 - 3\sqrt{3})$
 B) $(6, 3\sqrt{3} + 3)$
 C) $(-6, 3\sqrt{3} - 3)$
 D) $(-6, 3\sqrt{3} + 3)$
 E) $(3\sqrt{3} - 3, 6)$



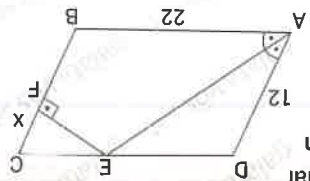
ABCD kare
 ABCD square
 $C(x, y) = ?$
 $D(6, 0)$

- A) 20 B) 21 C) 22 D) 23 E) 24

Since the points A(3, 4) B(-1, k+1) C(4, -1) are on the same line, k = ?
 A(3, 4) B(-1, k+1) C(4, -1) noktaları aynı doğru üzerinde olduğuna göre k = ?

10. A(-6, 0) B(0, -24) d_1 doğrusunun denklemini nedir? What is the equation of the line d_1 ?
- A) $x+y+24=0$ B) $x-y+24=0$ C) $x+y+12=0$ D) $x-y-12=0$ E) $-x+y+24=0$
11. OABC; eşkenar dörtgen B noktasının koordinat toplamları kaçtır? OABC; rhombus. What is the coordinate sum of point B?
- A) 5 B) 6 C) 7 D) 8 E) 9
12. ABCD karesi 16 tane kareden oluşmuştur. Square ABCD is made up of 16 squares. $\frac{A(ABCD)}{TA} = ?$ TA: Shaded Area.
- A) $\frac{12}{5}$ B) $\frac{13}{5}$ C) $\frac{14}{5}$ D) $\frac{16}{5}$ E) $\frac{17}{5}$
13. ABCD kare AEFK kare AEFK square AEFK kare AEFK square $|FB|=3$ $|KC|=7$ $|DE| \cdot |KB| = ?$
- A) 9 B) 10 C) 40 D) 44 E) 49
14. ABCD dikdörtgen $|AF|=3$ $|EF|=48\sqrt{3}$ $A(ABCD)=48\sqrt{3}$ $|AD|=?$
- A) $2\sqrt{3}$ B) $2\sqrt{5}$ C) $2\sqrt{6}$ D) $3\sqrt{6}$ E) $8\sqrt{3}$
15. ABCD paralelkenar ABCD parallelogram $m(\widehat{AEK}) = m(\widehat{KEC})$ $|EC|=5\sqrt{2}$ $|AB|=10$ $\widehat{C(ABCD)} = 30$ $|DE|=x=?$
- A) $5\sqrt{2}$ B) $5\sqrt{2}-5$ C) $\sqrt{2}+5$ D) 5 E) 100
16. ABCD paralelkenar ABCD parallelogram $m(\widehat{AEK}) = m(\widehat{KEC})$ $|EC|=5\sqrt{2}$ $|AB|=10$ $\widehat{C(ABCD)} = 30$ $|DE|=x=?$
- A) $5\sqrt{2}$ B) $5\sqrt{2}-5$ C) $\sqrt{2}+5$ D) 5 E) 100

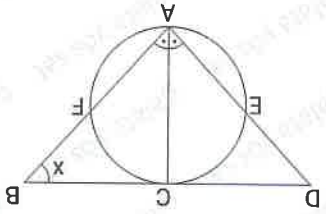
16. ABCD bir paralelkenar



- $m(\widehat{DAE}) = m(\widehat{EAB})$
- $[EF] \perp [BC]$
- $|AD| = 12$
- $|EF| = 8$
- $|AB| = 22$
- $x = ?$

- A) 6
- B) 7
- C) 8
- D) 9
- E) 10

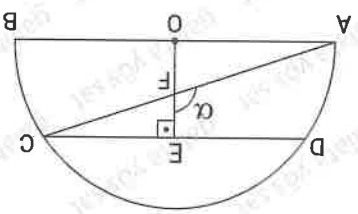
17. C: teğet noktası



- C: tangent point
- [AC]: açıortay
- [AC]: bisector
- $|AE| = |AF|$
- $m(\widehat{ECF}) = 220^\circ$
- $x = ?$

- A) 35
- B) 40
- C) 55
- D) 65
- E) 70

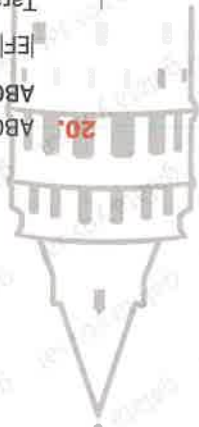
18. O: çemberin merkezi



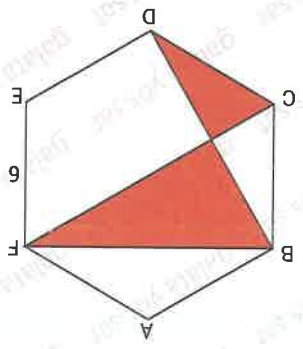
- O: çemberin merkezi
- $[DC] \parallel [AB]$
- $|OB| = 2|EC|$
- $[CD] \perp [OE]$
- $\alpha = ?$

- A) 100
- B) 110
- C) 120
- D) 140
- E) 150

20.



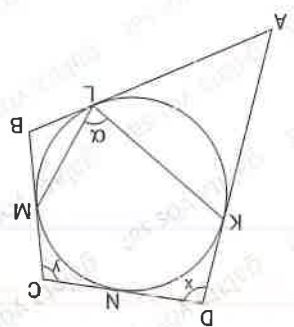
ABCDEF, düzgen altıgen
 $|EF| = 6$
 Taralı alan = ?
 Shaded area = ?



- A) $18\sqrt{3}$
- B) $20\sqrt{3}$
- C) $21\sqrt{3}$
- D) $24\sqrt{3}$
- E) $36\sqrt{3}$

19.

ABCD; teğetler dörtgeni
 ABCD; tangential quadrilateral



- $m(\widehat{ADC}) = y$
- $m(\widehat{BCD}) = x$
- $m(\widehat{KLM}) = \alpha$ 'nin x ve y türünden değeri nedir ?
- What is ALFA in terms of x and y ?

- A) $90 - \frac{x+y}{2}$
- B) $90 + \frac{x+y}{2}$
- C) $180 - \frac{x+y}{2}$
- D) $180 + \frac{x+y}{2}$
- E) $180 + x + y$

Başarıya Götüren



Mat	Problem Solving / Problem	Mat	Problem Solving / Problem
Geo	Problem Solving / Problem	Geo	Problem Solving / Problem
Mat	Problem Solving / Problem	Mat	Problem Solving / Problem

Mat	Integral / Integral	Mat	Permutation / Kombinasyon
IQ	3 Boyutlu Cisim / 3D Object	IQ	Keome - Kattama / Cutting - Folding
Geo	Doğru Analizi / Right Analytics	Geo	Simetri / Symmetry

Mat	Integral / Integral	Mat	Türev / Derivative
IQ	Şekli Karşılaştırma	IQ	Farklı Olan Bulma
Geo	Analitik Geometri / Analytical geometry	Geo	Daire Alan / Area in a circle

Mat	Logaritma Tanımlama	Mat	Özel Tanımlı Fonksiyonlar
IQ	Şekli İlgili Tablo	IQ	Şekli İlgili Sorular
Geo	Dikdörtgen / Rectangular	Geo	Kare / Square

Mat	Karmaşık Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry
IQ	Şekli İlgili Sorular	IQ	KLM
Geo	Yanuk / Trapezoid	Geo	Eşkenar Dörtgen / Rhombus

Mat	Modüler Aritmetik	Mat	Polinom / Polynomial
IQ	Küp Sayma Taramama	IQ	Çizimler / Graphics
Geo	Çokgenler / Polygons	Geo	Dörtgen / Quadrilateral

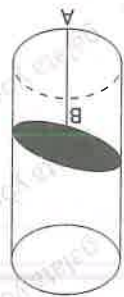
Mat	İki Eşitlik / Equation Matching	Mat	Kurucu Çarpımı ve Fonksiyonlar
IQ	Denklemler Eşleştirmesi / Equation Matching	IQ	Eşleştirmesi / Matching
Geo	Üçgenin Kenar Uzunlukları / Angle Side Relation in Triangle	Geo	Üçgenin Alanı / Area of Triangles

Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers
IQ	Sayı Bağımlı / Number Relations	IQ	Tablolar / Tables
Geo	Kenar Uzunlukları / Medium	Geo	Üçgenin Benzerliği

Mat	Basit Eşitlik ve Mutlak Değer	Mat	Çarpım Ayrımı / Factorization
IQ	Basit Eşitlik ve Mutlak Değer	IQ	İşlemler / Operations
Geo	Çokgen / Bisector	Geo	İzometrik ve Eşkenar Üçgen

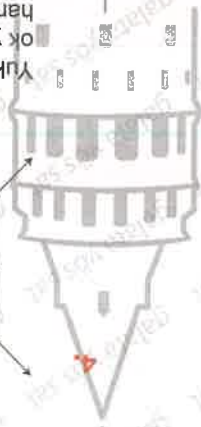
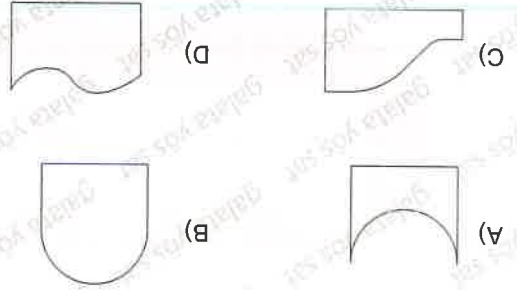
Mat	İki Eşitlik ve Rasyonel Sayılar	Mat	Birinci Dereceden Denklem
IQ	Şifreler / Passwords	IQ	Sayı Örüntüleri / Number patterns
Geo	Üçgen / Angles	Geo	Üçgenin Alanı / Angles in triangles

2023-26



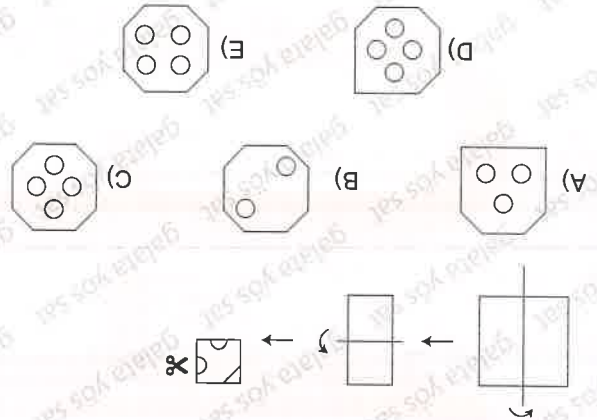
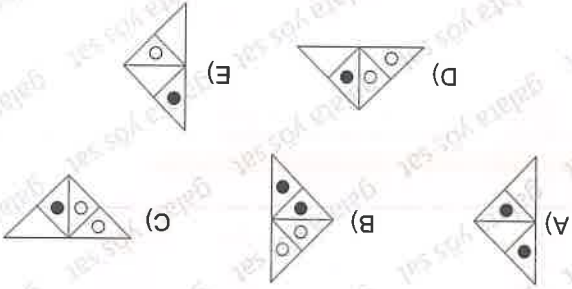
Alt ve üst tabanları açık boru şeklindeki silindirin tabanları düzlem boyunca kesilip, üstteki parça atılıyor. Altta kalan parça AB doğrusu boyunca kesilerek açıldığında aşağıdaki görünümünden hangisi elde edilir ?

The upper and lower bases of the open pipe cylinder are thrown along the shaded plane. Which of the following views is obtained when the lower part is cut open along the AB line?

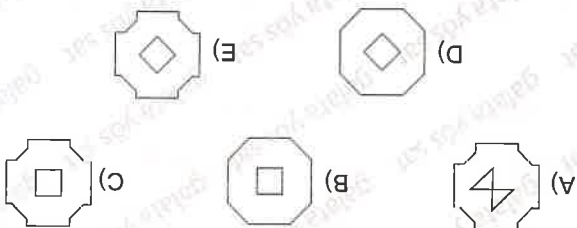
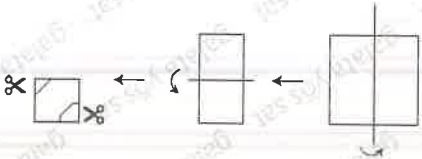


Yukarıdaki şekil önce d_1 sonra d_2 eksenini çevresinde ok yönünde katanıldığında oluşan şekli aşağıdakilerden hangisidir ?

Which of the following is the figure formed when the above figure is folded around the d_1 and then d_2 axis in the direction of the arrow?

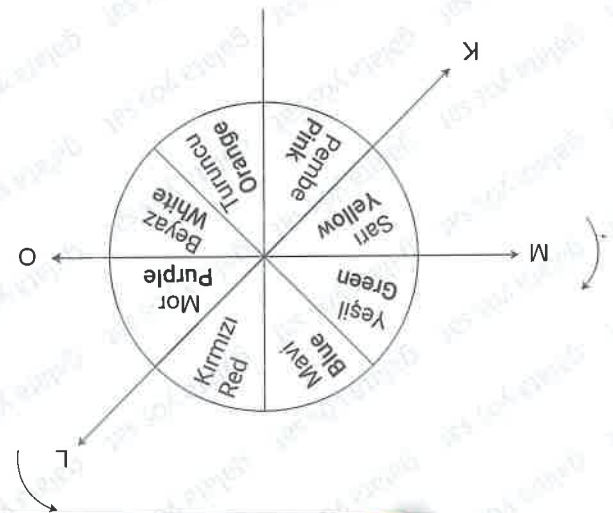


3.



1.

10



6.

Yukarıdaki şekil önce KL doğrusu boyunca ok yönünde sonra OM doğrusu ok yönünde katlandığında alt tan üstte doğru üst üste gelen renkler hangisidir ?
 In the above figure, first along the line KL in the direction of the arrow, then when the line OM is folded in the direction of the arrow, which are the colors that overlap from bottom to top?

A) Yeşil – Turuncu – Kırmızı – Mavi
 Green - Orange - Red - Blue

B) Pembe – Sarı – Yeşil – Turuncu
 Pink - Yellow - Green - Orange

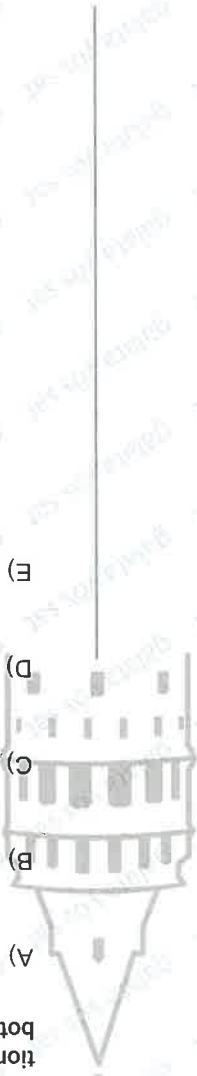
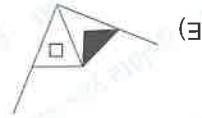
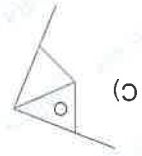
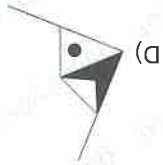
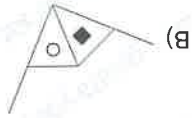
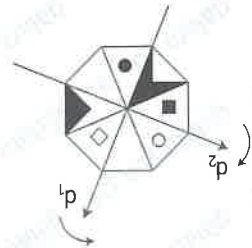
C) Turuncu – Sarı – Pembe
 Orange - Yellow - Pink

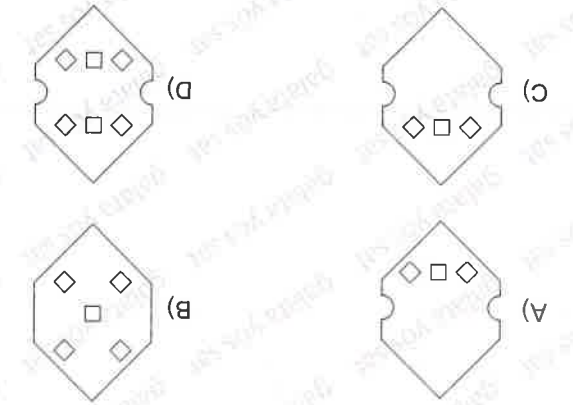
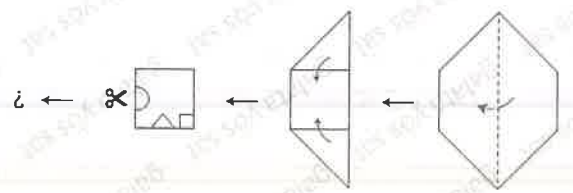
D) Yeşil – Turuncu – Pembe – Sarı
 Green - Orange - Pink - Yellow

E) Sarı – Pembe – Turuncu – Yeşil
 Yellow - Orange - Green - Pink

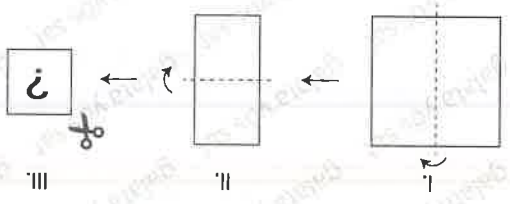
5.

Yukarıdaki şekil önce d_1 sonra d_2 doğrusu ekseninde ok yönünde katlanırsa oluşan şekil aşağıdakilerden hangisidir ?
 If the figure above is folded in the direction of the arrow on the d_1 and then d_2 line axis, what is the figure below?

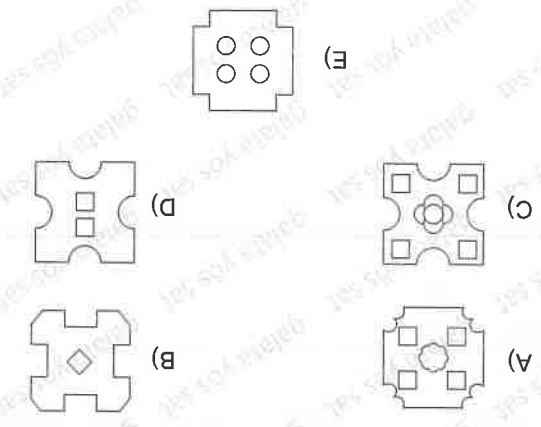
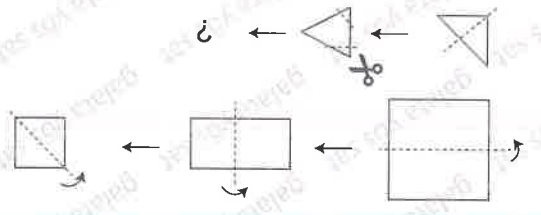
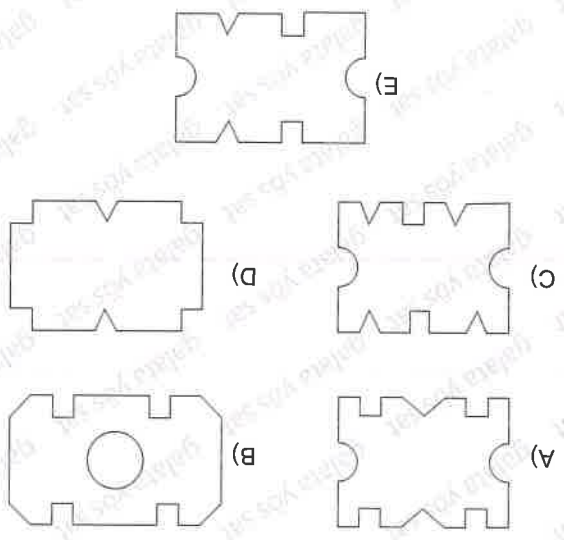
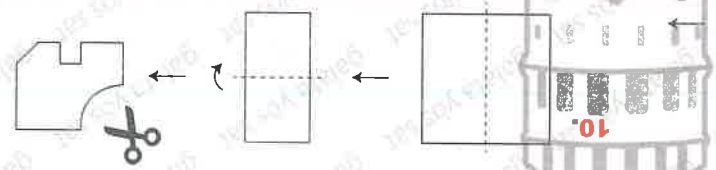
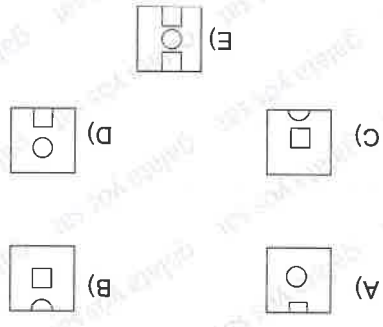
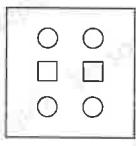




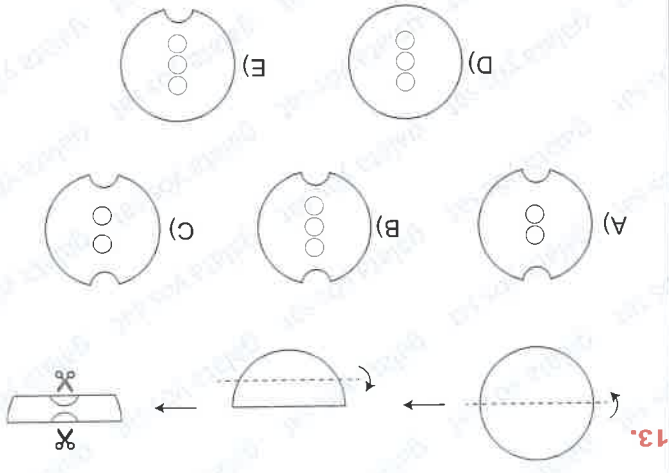
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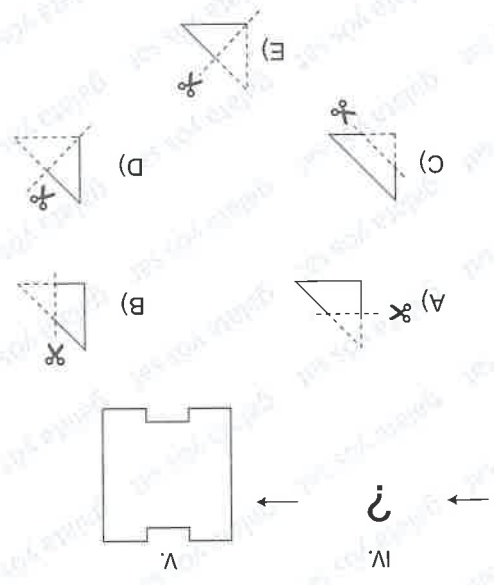
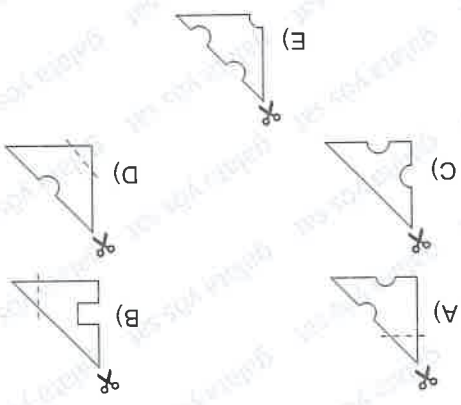
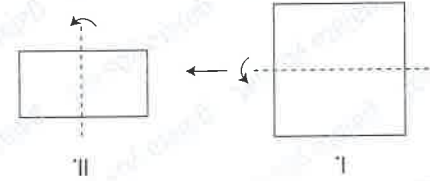
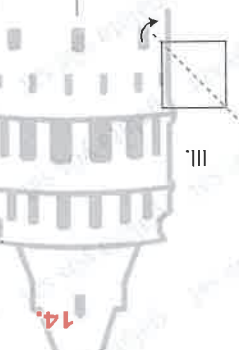
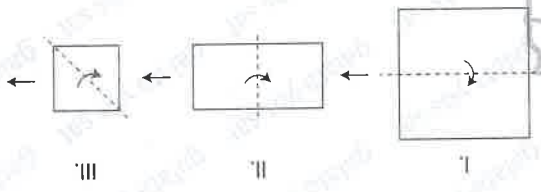
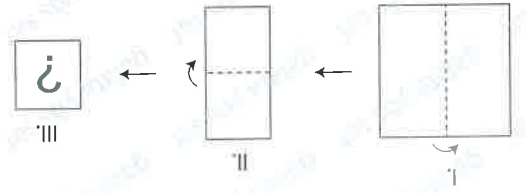
Yandaki şeklin oluşması için kağıt III. adımda nasıl kesilmiştir?
 How was the paper cut in step III.
 to create the shape?



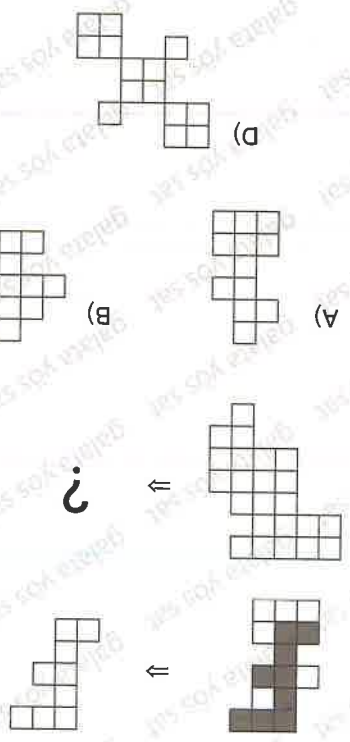
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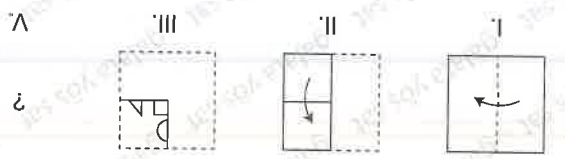
Yandaki şeklin oluşması için kağıt III. adımda nasıl kesilmiştir
How was the paper cut in III. to create the shape?



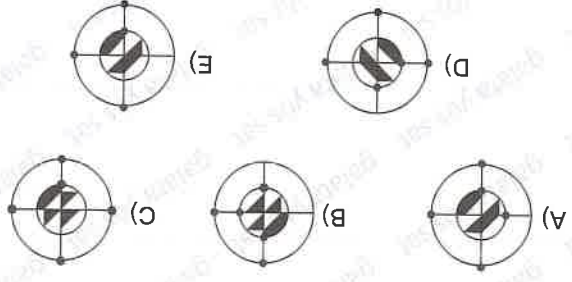
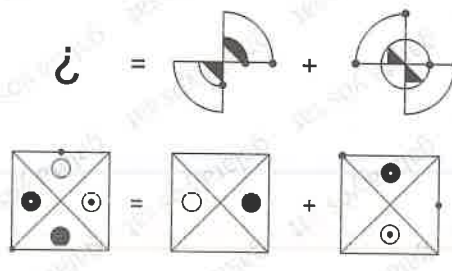
16.



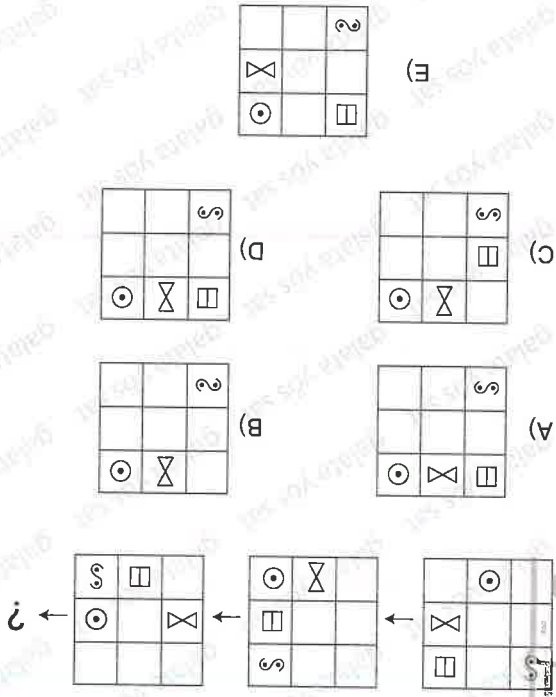
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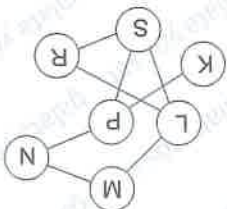
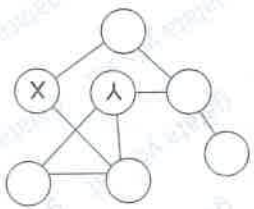


17.



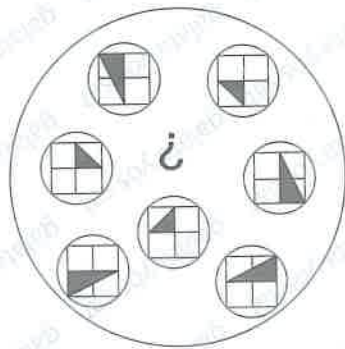
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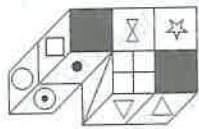
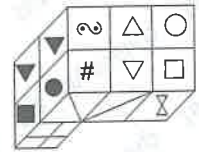
- A) $\frac{Y}{X}$
- B) $\frac{S}{M}$
- C) $\frac{M}{S}$
- D) $\frac{R}{S}$
- E) $\frac{M}{L}$

21.

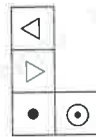


- A)
- B)
- C)
- D)
- E)

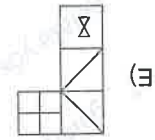
19.



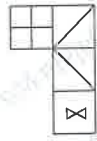
?



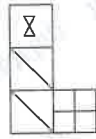
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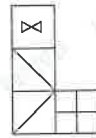
E)



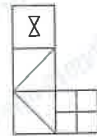
C)



D)

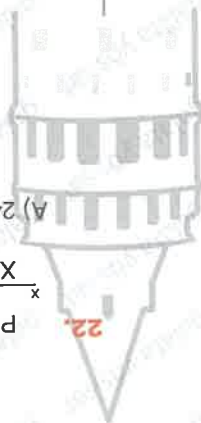


B)



A)

23.



22.

$$\frac{P}{R} \times \frac{X}{5}$$

A) 24

$$\frac{P}{R} \times \frac{W}{7}$$

B) 32

$$\frac{X}{Y} + \frac{144}{WZ}$$

C) 48

$$X \cdot W = ?$$

D) 60

E) 84

18	20	7	K
34	42		
L	64	16	13
11	9	36	10
23	26		
8	11	17	46

$$K + L = ?$$

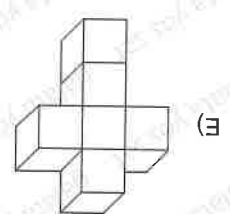
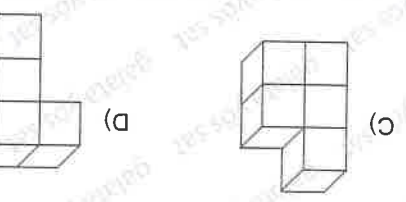
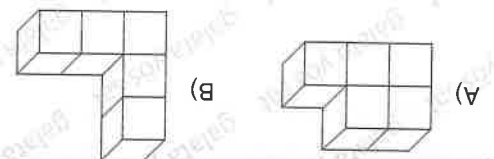
A) 63 B) 64

C) 64

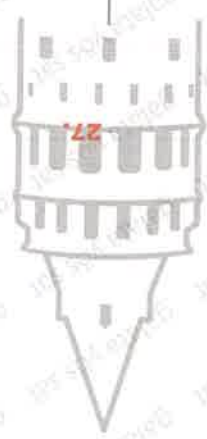
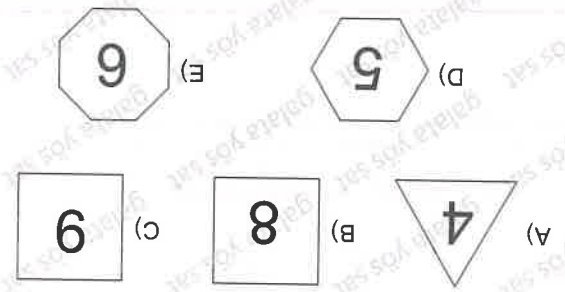
D) 66

E) 67

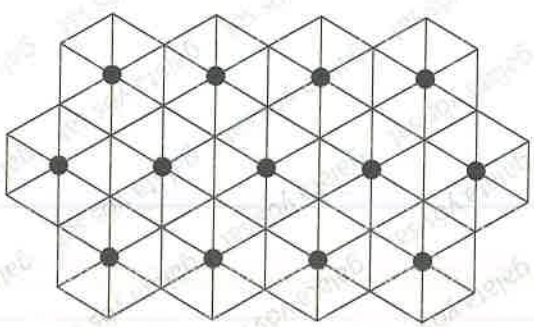
24. Aşağıdakilerden hangisi farklıdır ?
Which of the following is different?



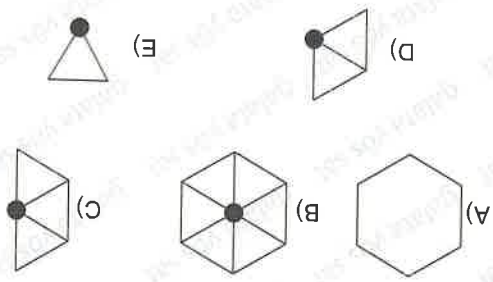
25. Aşağıdakilerden hangisi farklıdır ?
Which of the following is different?



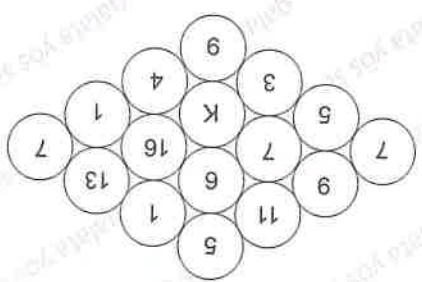
26.



Yukarıdaki süslemenin kodu aşağıdakilerden hangisidir ?
Which of the following is the code for the decoration above?

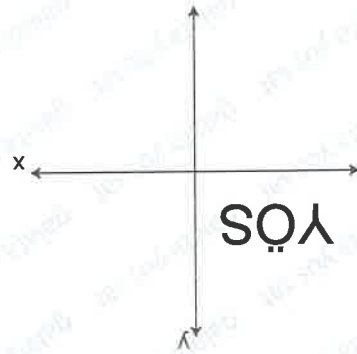


⇒ K = ?



A) 6 B) 7 C) 8 D) 11 E) 13

28.



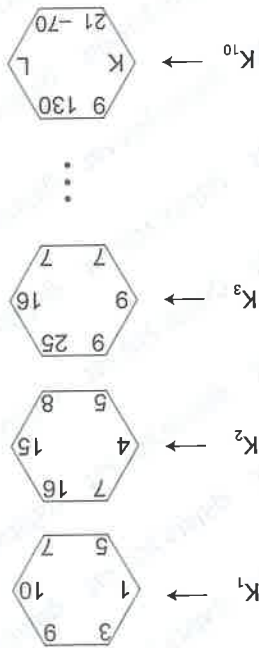
Koordinat sisteminin 2. bölgesine yazılan YÖS kelimesinin önce x eksenine sonra y eksenine göre simetrisi alınca aşağıdaki kelimelerin hangisi elde edilir ?
 When the word YÖS written in the second region of the coordinate system is symmetrical with respect to the x-axis and then the y-axis. Which of the following is obtained?

- A) YÖS
- B) YÖZ
- C) SÖY
- D) SÖZ
- E) YÖZ

29. $7 \cdot 9 + 9 \cdot 11 + 11 \cdot 13 + \dots + 29 \cdot 31 = K$
 $27 \cdot 33 + 33 \cdot 39 + \dots + 87 \cdot 93 = ?$

- A) $9K + 63$
- B) $3K + 189$
- C) $9K - 63$
- D) $3K - 315$
- E) $9K - 567$

30.



Yukarıdaki işlem 10. adımda K ile L'nin değeri nedir ?
 What is the value of K and L in the 10th step of the above process?

- A) $K = 121$ $L = -61$
- B) $K = 144$ $L = -61$
- C) $K = 100$ $L = -61$
- D) $K = 100$ $L = +61$
- E) $K = 121$ $L = +61$

1.

3 mektup 4 posta kutusunda kaç değişik şekilde atılabilir ?
 How many different ways can 3 letters be sent in 4 mailboxes?

- A) 4
- B) 8
- C) 32
- D) 64
- E) 81

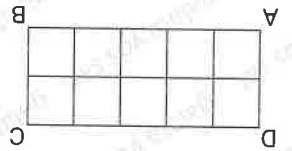
2.

{0, 1, 2, 3, 4, 5, 6} kümesinin elemanları kullanarak rakamları farklı üç basamaklı 400 den küçük kaç sayı yazılabilir?

How many numbers less than 400 with different digits can be written using the elements of {0, 1, 2, 3, 4, 5, 6} set?

- A) 60 B) 90 C) 120 D) 150 E) 180

3.



A dan C ye gizlileri takip ederek en kısa yoldan kaç farklı şekilde gidilebilir?

How many different ways can be taken from A to C by the shortest route?

- A) 15 B) 16 C) 18 D) 20 E) 21

4.

GALATA kelimesinin harfleri ile iki A yan yana gelme-mek şartıyla 6 harfli kaç farklı kelime yazılabilir?

How many different words of 6 letters can be written, provided that the letters of the word GALATA and the two A letters do not come together?

- A) 108 B) 96 C) 72 D) 48 E) 24

5.

{a, b, c, d, e, f} kümesinin 4 elemanlı alt kümelerinin kaç tanesinde a bulunur, b bulunmaz?

How many of the 4-element subsets of the set {a, b, c, d, e, f} have a and not b?

- A) 7 B) 6 C) 5 D) 4 E) 3

9.

$$(\sqrt[3]{2} + \sqrt{2})^{11}$$

agliminda rasyonel terim kaçtır?

What is the rational term in its expansion?

- A) $8 \binom{5}{11}$ B) $4 \binom{5}{11}$ C) $2 \binom{5}{11}$
D) $8 \binom{4}{10}$ E) $4 \binom{4}{10}$

6.

3 öğrenci, 5 öğrenci arasından 1 öğretmen ve 2 öğrenci yan yana kaç değişik biçimde fotoğraf çekilebilir?

How many different ways can 1 teacher and 2 students take pictures side by side among 3 teachers and 5 students?

- A) 120 B) 136 C) 140 D) 160 E) 180

7.

$$(x^2 - 2y)^8$$

agliminda sondan 3. terimin kat sayısı kaçtır?

What is the coefficient of the last 3 terms in the expansion?

- A) 1800 B) 1792 C) 1720 D) 1680 E) 1600

8.

$$\left(2x^2 + \frac{1}{x}\right)^9$$

agliminda sabit terim kaçtır?

What is the constant term in its expansion?

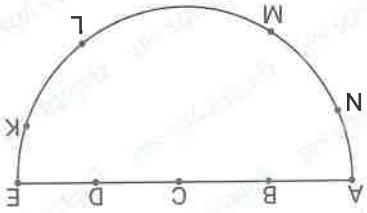
- A) 924 B) 884 C) 744 D) 672 E) 596

10. $(x-y+z)^8 = +Ax^3y^3z^2 + \dots$

$\Rightarrow A = ?$

- A) -560 B) -90 C) -60 D) -30 E) -15

13.



Şekilde yarım çember ve çarpı üzerinde 9 nokta işaretleniyor. Bu noktalardan rastgele seçilen 3 noktanın bir üçgenin köşeleri olma olasılığı kaçtır? 9 points are marked on the semicircle and cross in the figure. What is the probability that 3 points randomly chosen from these points are the vertices of a triangle?

- A) $\frac{37}{84}$ B) $\frac{42}{37}$ C) $\frac{21}{20}$ D) $\frac{7}{5}$ E) $\frac{11}{21}$

11. İçinde 6 beyaz, 3 siyah ve 7 mavi top bulunan bir torbada beyaz olma olasılığı kaçtır? 3 balls are drawn in a row from a bag containing 6 white, 3 black and 7 blue balls. What is the probability that all three drawn balls are white?

- A) $\frac{7}{3}$ B) $\frac{7}{1}$ C) $\frac{28}{1}$ D) $\frac{16}{3}$ E) $\frac{8}{3}$

14.

Birinci torbada 3 kırmızı, 4 mavi ve ikinci torbada 4 kırmızı, 3 mavi top vardır. Birinci torbadan bir top alınıp rengine bakılmadan ikinci torbaya atılıyor. Daha sonra ikinci torbadan da 2 top alınıyor. Son durumda ikinci torbadan gelen iki topun aynı renkte olma olasılığı nedir?

The first bag contains 3 red, 4 blue and the second bag contains 4 red and 3 blue balls. One ball is taken from the first bag and 2 balls are taken from the second bag regardless of the color. What is the probability that the two balls drawn from the second bag are the same color?

- A) $\frac{196}{85}$ B) $\frac{43}{98}$ C) $\frac{196}{87}$ D) $\frac{49}{22}$ E) $\frac{196}{89}$

12. A ve B olayları için $P(A \cup B) = \frac{5}{2}$, $P(A \cap B) = \frac{3}{2}$, $P(A) = \frac{6}{1}$, $P(B) = ?$

- A) $\frac{30}{17}$ B) $\frac{30}{13}$ C) $\frac{3}{1}$ D) $\frac{30}{29}$ E) $\frac{1}{15}$

15.

$\frac{\cot^2 x}{1} = 2 \cdot \tan x - 1$

denkleminin $[0, 2\pi]$ aralığındaki köklerin toplamı kaçtır? What is the sum of the roots in $[0, 2\pi]$ range?

- A) $\frac{2}{3\pi}$ B) $\frac{6}{11\pi}$ C) $\frac{3}{5\pi}$ D) $\frac{6}{7\pi}$ E) $\frac{5}{6\pi}$

16. $\log_5 \left(\frac{1}{9+4^x} \right) - 2$, $\log_3 (17+8^x) - y$

$= y = ?$

- A) 4 B) 5 C) 6 D) 7 E) 8

17. $\frac{\sqrt{16-x^2}}{x^2-4x-12} \leq 0 \Rightarrow SS = ?$

- A) $[-6,4]$ B) $(-4,6]$ C) $(-2,4]$ D) $(-4,2]$ E) $[-6,6]$

18. $\lim_{x \rightarrow \infty} x \ln \left(1 + \frac{3}{x} \right) = ?$

- A) 3 B) $\frac{2}{3}$ C) 0 D) -1 E) -2

22. $\int_{e^2}^e x(\ln x)^2 dx = ?$

- A) $\frac{1}{2}$ B) $\frac{2}{3}$ C) 1 D) 2 E) 4

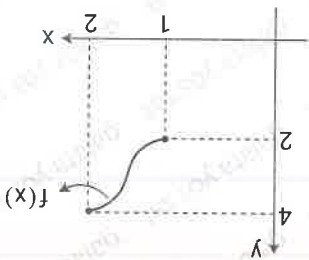
21. $b > 0$ olduğuna göre

$\int_b^a (2x - x^2) dx$

ifadesinin en büyük değeri kaçtır ?

What is the highest value of the expression?

- A) $\frac{1}{2}$ B) $\frac{2}{3}$ C) $\frac{2}{5}$ D) $\frac{3}{1}$ E) $\frac{3}{14}$



$f: [1,2] \rightarrow [2,4]$
olduğuna göre $\int_2^1 f(x) dx + \int_4^2 f^{-1}(x) dx = ?$

- A) 2 B) 4 C) 6 D) 8 E) 10

20.

23. $\frac{x^2-4}{x^2+5x-14} : \frac{x+7}{1} = 14 \Rightarrow x = ?$

- A) 10 B) 12 C) 14 D) 16 E) 18

19. Gerçek sayılar kümesinde tanımlı ve türevlenebilir bir f fonksiyonu için $f(x+y) = f(x) + f(y) + x \cdot y$ for a differentiable function f defined in a set of real numbers

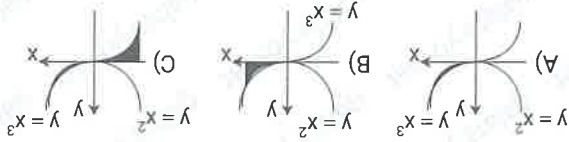
$\lim_{h \rightarrow 0} \frac{f(h)}{h} = 3 \Rightarrow f'(1) = ?$

- A) 2 B) 3 C) 4 D) 5 E) 6

24. $y \geq x^3$, $y \leq x^2$, $x \cdot y \geq 0$

eşitsizlik sisteminin analitik düzlemdeki görüntüsü aşağıdakilerden hangisidir ?

What is the image of the inequality system on the analytical plane?



A) $y = x^2$, $y = x^3$

B) $y = x^2$, $y = x^3$

C) $y = x^2$, $y = x^3$

D) $y = x^2$, $y = x^3$

E) $y = x^2$, $y = x^3$

25. $y = ax^2 - 2x + 1$

parabolünün tepe noktası x eksenini üzerinde olduğuna göre, a kaçtır ?

is a?

Since the vertex of the parabola is on the x-axis, what

A) 5

B) 4

C) 3

D) 2

E) 1

$\Rightarrow a + b + c = ?$

$(5a + 3b + c) \cdot (3a + b - c) = 19$

29. a, b, c ∈ Z

A) 7 B) 8 C) 9 D) 10 E) 12

26. $x, y \in \mathbb{R}^+$

$$\begin{cases} \sqrt{x-y} = x+y-3 \\ \sqrt{x+y} = x-y+1 \end{cases} \Rightarrow x \cdot y = ?$$

A) 15

B) $\frac{2}{15}$

C) 5

D) 3

E) $\frac{4}{15}$

30. E evrensel küme;
E universal set;

$A \subset E$, $s(A) = 9$, $s(E) = 14 \Rightarrow s(A') = ?$

A) 2

B) 3

C) 4

D) 5

E) 6

28. $\frac{a}{b} = \frac{4}{8} \Rightarrow \sqrt{(a+b) \cdot c} = ?$

A) $3\sqrt{10}$ B) $4\sqrt{6}$ C) 10 D) $2\sqrt{26}$ E) $2\sqrt{30}$

27. $x \in \mathbb{R}$

$\frac{a}{b} < 1 - \frac{b}{a}$

olduğuna göre, aşağıdakilerden hangisi kesinlikle doğrudur?

Which of the following is absolutely true?

A) $b < 1$

B) $b > 1$

C) $b < x$

D) $b > x$

E) $a < b$

1. A (3, -5) noktasının x eksenine göre simetrisi $5x-4y+k=0$ doğrusunun üzerinde ise $k=?$
If the symmetry of the point A (3, -5) with respect to the x-axis is on the line $5x-4y+k=0$ then $k=?$

A) 3 B) 4 C) 5 D) 6 E) 7

2. A (-5, 4) noktasının orijine göre simetrisi B, y eksenine göre simetrisi C olduğuna göre $|BC|=?$
Since the point A (-5, 4) is symmetric with respect to the origin B and its symmetric with respect to the y axis is C, $|BC|=?$

A) 3 B) 4 C) 8 D) 10 E) 12

3. A (-2, 4) noktasının $x=7$ doğrusuna göre simetrisi B noktası, B noktasının $y=-3$ doğrusuna göre simetrisi C ise C'nin koordinatları toplamı nedir?
If the symmetry of the point A (-2, 4) with respect to the line $x=7$ is point B, and the symmetry of point B with respect to the line $y=-3$ is C, what is the sum of the coordinates of C?

A) 6 B) 7 C) 8 D) 9 E) 10

4. A (-5, 10) noktasının B (a, b) noktasına göre simetrisi C (-15, 8) olduğuna göre $a-b=?$
The symmetry of the point A (-5, 10) to the point B (a, b) is C (-15, 8). What is $a-b=?$

A) -1 B) 1 C) 19 D) -19 E) -5

5.

$4x-12y+14=0$ doğrusunun x eksenine göre simetrisi olan y eksenini hangi noktada keser?

At what point does the line $4x-12y+14=0$ intersect the y axis, which is symmetrical with respect to the x axis?

A) $-\frac{6}{5}$ B) -1 C) $-\frac{6}{7}$ D) $\frac{6}{7}$ E) $\frac{7}{6}$

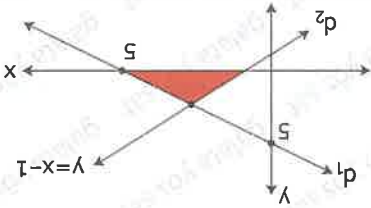
$$d_1: 2x-3y+5=0 \quad d_2: x+2y-8=0$$

doğrularının kesim noktasından geçen ve x eksenine pozitif yönde 120° açı yapan doğrunun denklemini yazınız. Write the equation of the line that passes through the cutting point of the lines and makes a positive 120° -degree angle with the x-axis.

A) $y+\sqrt{3}x-2\sqrt{3}-3=0$ B) $y+\sqrt{3}x-2\sqrt{3}+3=0$
C) $y+\sqrt{3}x+2\sqrt{2}+3=0$ D) $\sqrt{3}y+x-2\sqrt{3}+3=0$
E) $\sqrt{3}y-x+2\sqrt{3}-3=0$

6.

d_1, d_2 ve x eksenleri arasında kalan bölgenin alanı nedir? What is the area between d_1, d_2 and the x-axis?



A) 4 B) 5 C) 8 D) 10 E) 16

8.

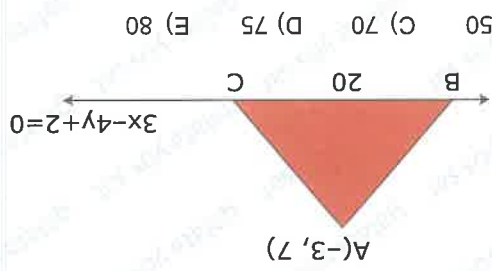
A (-2, k) noktası $2x-5y-23=0$ doğrusunun üzerinde

$$=k=?$$

If the point A (-2, k) is above the $2x-5y-23=0$ line, $k=?$

A) $-\frac{22}{5}$ B) $-\frac{5}{23}$ C) $-\frac{5}{27}$ D) $\frac{5}{27}$ E) $\frac{5}{28}$

9. $|BC| = 20$
 $A(\triangle ABC) = ?$



- A) 22 B) 50 C) 70 D) 75 E) 80

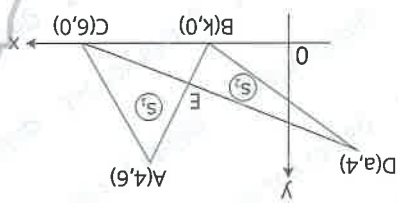
10. $A(\triangle AEC) = S_1$

$A(\triangle DEB) = S_2$

$S_1 - S_2 = 4$

$k = ?$

- A) 1 B) 2 C) 3 D) 4 E) 7



13. ABCD : kare

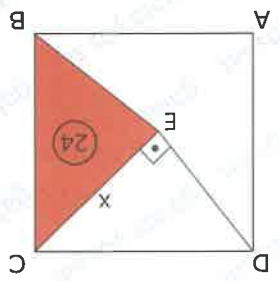
ABCD : square

$[DE] \perp [CE]$

$A(\triangle BCE) = 24$

$|CE| = x = ?$

- A) $2\sqrt{3}$ B) $3\sqrt{3}$ C) $4\sqrt{3}$ D) $5\sqrt{3}$ E) $6\sqrt{3}$



12. ABCD dikdörtgen

ABCD rektangular

$|AE| = |ED|$

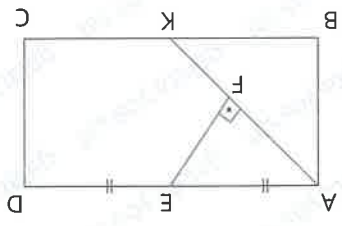
$[EF] \perp [AK]$

$|EF| = 4$

$|AK| = 7$

$A(\triangle ABC) = ?$

- A) 28 B) 30 C) 36 D) 40 E) 56



11. Analitik düzlemde iki noktadan birinin apsisi diğersinin 8 eksiğine, birinin ordinatı diğersinin 6 fazlasına eşit olduguna göre iki nokta uzaklık nedir ?
 Since the abscissa of one of the two points on the analytical plane is equal to 8 minus the other and the ordinate of one equals 6 plus the other, what is the two point distance?

- A) 5 B) 6 C) 7 D) 9 E) 10

14. BDEF ; deltoid

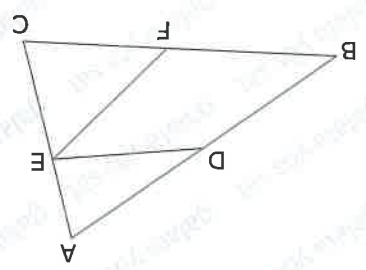
$\frac{|EC|}{|AE|} = 3$

$|EC| = |AB|$

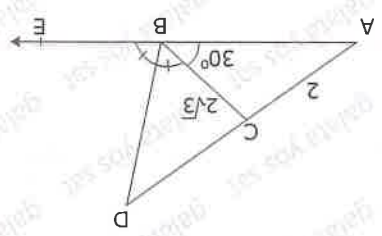
$S(\triangle ABC) = 48$

$|AE| = ?$

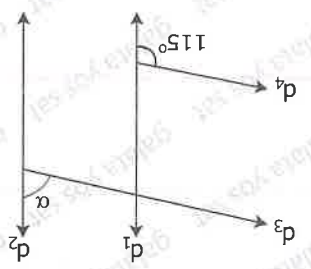
- A) 3 B) 4 C) 6 D) 9 E) 27



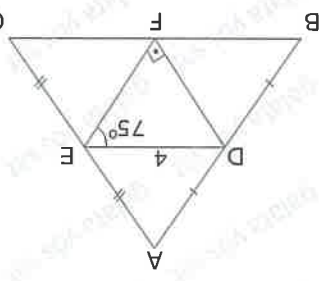
17. $m(\widehat{CBD}) = m(\widehat{DBE})$
 $m(\widehat{ABC}) = 30^\circ$
 $|AC| = 2$
 $|BC| = 2\sqrt{3}$
 $A(\widehat{DBC}) = ?$
 A) $6 + 6\sqrt{3}$
 B) $6\sqrt{3} - 6$
 C) $6\sqrt{3} + 7$
 D) $6\sqrt{3} + 12$
 E) $12 + 12\sqrt{3}$



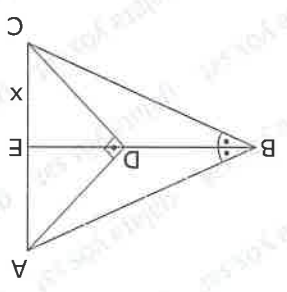
20. $d_1 \parallel d_2$
 $d_3 \parallel d_4$
 $\alpha = ?$
 A) 60
 B) 65
 C) 80
 D) 95
 E) 125



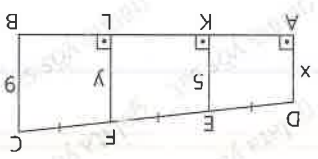
16. $|AD| = |DB|$
 $|AE| = |EC|$
 $[DF] \perp [EF]$
 $m(\widehat{DEF}) = 75^\circ$
 $|DE| = 4$
 $A(\widehat{ABC}) = ?$
 A) 6
 B) 7
 C) 8
 D) 10
 E) 12



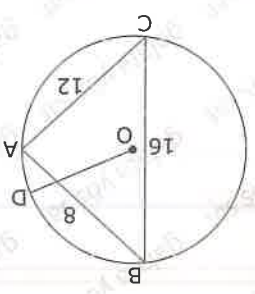
19. $m(\widehat{ABD}) = m(\widehat{DBC})$
 $[AD] \perp [DC]$
 $|AB| = |BC|$
 $|BD| = |DE|$
 $|AB| = 6\sqrt{5}$
 $|EC| = x = ?$
 A) 3
 B) 4
 C) 5
 D) 6
 E) 8



15. $|DE| = |EF| = |FC|$
 $|EK| = 5$
 $|BC| = 9$
 $|AD| = x$
 $|FL| = y$
 $x - y = ?$
 A) -2
 B) -3
 C) -4
 D) -5
 E) -7



18. O gemberin merkezi!
 $|AB| = 8$
 $|AC| = 12$
 $|BC| = 16$
 $|OD| = r = ?$
 A) $\frac{\sqrt{15}}{8}$
 B) $\frac{\sqrt{15}}{12}$
 C) $\frac{\sqrt{15}}{16}$
 D) $\frac{\sqrt{15}}{32}$
 E) $\frac{\sqrt{15}}{64}$



Başarıya Götüren



Mat	Problem Solving / Problem	Mat	Problem / Sorun
IQ	Problem Solving / Problem	IQ	Problem / Sorun
Geo	Problem Solving / Problem	Geo	Problem / Sorun

Mat	Integral / Integral	Mat	Parabolün Köklerini Bulma / Solving Quadratic Equations
IQ	3 Boyutlu Cisim / 3D Object	IQ	Kesim - Kesim / Cutting - Folding
Geo	Doğru Analizi / Right Analytics	Geo	Birim / Symmetry

Mat	Integral / Integral	Mat	Türev / Derivative
IQ	Şekli Karşılaştırma / Shape Comparison	IQ	Farklı Çizim Bulma / Finding the different
Geo	Analitik Geometri / Analytical geometry	Geo	Dairede Alan / Area in a circle

Mat	Logaritma Fonksiyonları / Logarithm Induction	Mat	Özel Tanımlı Fonksiyonlar / Custom Defined Functions
IQ	Şekli İlişkileri Tablo / Figure Relations, Table	IQ	Şekli İlişkileri Sorular / Figure Relations, Sort
Geo	Dikdörtgen / Rectangular	Geo	Kare / Square

Mat	Karmaşık Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry
IQ	Şekli İlişkileri Tamamlama / Completing Shape Relations	IQ	KLM
Geo	Yanuk / Trapezoid	Geo	Esikler Dörtgen / Rhombus

Mat	Modüler Aritmetik / Modular Arithmetic	Mat	Polinom / Polynomial
IQ	Küp Sayma Tamamlama / Cube Counting and Completion	IQ	Çizimler / Graphics
Geo	Çokgenler / Polygons	Geo	Dörtgen / Quadrilateral

Mat	İşlem / Operation	Mat	Karşılıklı Çarpım ve Fonksiyonlar / Cartesian Product and Functions
IQ	Denklemler Eşitlik / Equation Matching	IQ	Eşleştirme / Matching
Geo	Açı-kenar Eşitlik / Angle-side Relation in Triangle	Geo	Üçgenin Alanı / Area of Triangles

Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers
IQ	Sayı Bağlantıları / Number relations	IQ	Tablolar / Tables
Geo	Oran Orantı / Ratio and Proportion	Geo	Üçgenin Benzerlik / Similarity in Triangles

Mat	Basit Eşitsizlik ve Mutlak Değer / Simple Inequality and Absolute Value	Mat	Çarpımın Ayrımı / Factorization
IQ	Sayı Bağlantıları / Number Relations	IQ	İşlemler / Operations
Geo	Ağırlık / Bisector	Geo	Dik Üçgen ve Eşkenar Üçgen / Right Triangle

Mat	İşlem Üzerinde ve Rasyonel Sayılar / Order of operations and Rational Numbers	Mat	Birinci Dereceden Denklem / First-Degree equations
IQ	Şifreler / Passwords	IQ	Sayı Örüntüleri / Number patterns
Geo	Açılar / Angles	Geo	Üçgenin Alanı / Angles in triangles

KTS-27

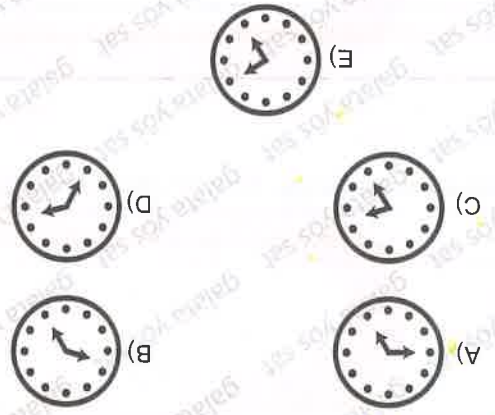
1. Bugün, günlerden 2 Nisan perşembe ve saat 14:00 ise 314 saat sonra; tarih, gün ve saat olarak aşağıda kilerden hangisidir ?
Today is Thursday, April 2 at 14:00. Which of the following is the date, day and time after 314 hours?

TARİH DATE	GÜN DAY	SAAT HOUR
A) 14 Nisan/April	Salı / Tuesday	22:00
B) 15 Nisan/April	Çarşamba / Wednesday	04:00
C) 15 Nisan/April	Salı / Tuesday	16:00
D) 15 Nisan/April	Çarşamba / Wednesday	16:00
E) 16 Nisan/April	Perşembe / Thursday	16:00

2.

Saat 09:25'te saatin aynadaki görüntüsü aşağıdakilerden hangisidir ?

What is the mirror image of the clock at 09:25?



5.

Saat 9:35 te akrep ile yelkovan arasındaki genis açı kaçtır ?
What is the wide angle between the hour hand and the minute hand at 9:35 am?



4. Saat 23:30 da Akrep ile yelkovan arasındaki açı kaç derecedir ?
What is the angle between the hour hand and the minute hand at 23:30?

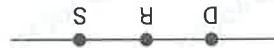
3. Saat 15:37 ise akrep ile yelkovan arasındaki açı kaç derecedir ?
If it is 15:37 what is the angle between the hour hand and the minute hand?

- A) 77,5
B) 226,5
C) 268,5
D) 282,5
E) 310

- A) 216
B) 186
C) 192
D) 201
E) 165

- A) 246,5
B) 216
C) 192
D) 135
E) 113

6.



Şekilde noktalar kullanarak bir köşesi M olan kaç farklı üçgen çizilebilir ?

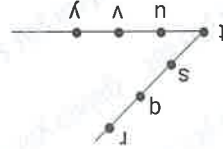
How many different triangles with a corner M can be drawn using points in the figure?

A) 9 B) 12

C) 15 D) 18

E) 24

7.



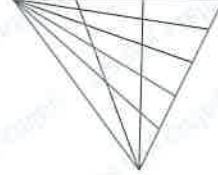
Şekildeki noktalar ile kaç farklı üçgen çizilebilir ?

How many different triangles can be drawn with the points

in the figure?

A) 27 B) 26 C) 25 D) 24 E) 23

8.

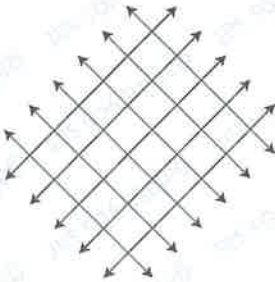


Şekilde kaç üçgen vardır ?

How many triangles are there in the shape?

A) 40 B) 50 C) 60 D) 75 E) 80

9.

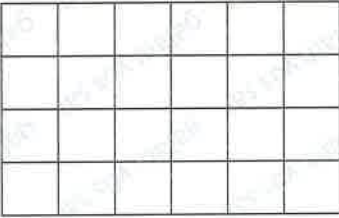


Şekilde kaç dörtgen vardır ?

How many rectangles are there in the shape?

A) 150 B) 120 C) 80 D) 40 E) 20

10.

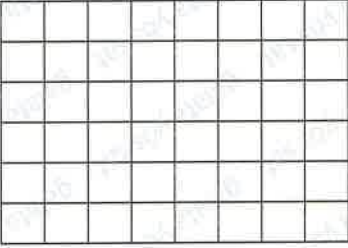


Şekilde kaç tane kare vardır ?

How many squares are there in the shape?

A) 24 B) 36 C) 48 D) 50 E) 100

11.



Şekilde 3x2'lik dikdörtgen sayısı nedir ?

What is the number of 3x2 rectangles in the figure?

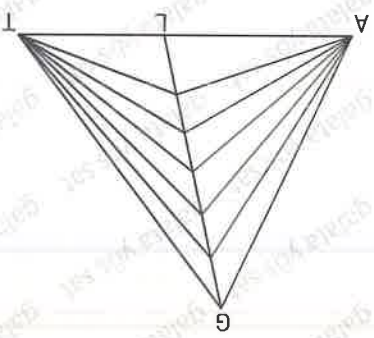
A) 63 B) 58 C) 55 D) 40 E) 35

12. V
!
! R R R S
! R R R S
! R R R S
! R R R S

13. VIRÜS kelimesi yukarıdan aşağıya harfler takip edilerek kaç türlü okunur?
In how many ways is the word VIRÜS read by following the adjacent letters from top to bottom?

- A) 4 B) 8 C) 16 D) 32 E) 64

14. Yukarıdaki GAT üçgeninde A, L ve T noktaları doğrusaldır. Buna göre şekilde kaç üçgen vardır?
In the GAT triangle above, the points A, L and T are linear. How many triangles are there in the shape?



- A) 16 B) 24 C) 48 D) 50 E) 52

G	Ü	Z	E	L
G	Ü	Z	E	L
Ü	Z	E	L	L
Z	E	L	L	!
E	L	L	!	K

15. GÜZELLİK kelimesi sol üst köşeden başlayarak komşu harfler takip edilerek kaç farklı şekilde okunur?

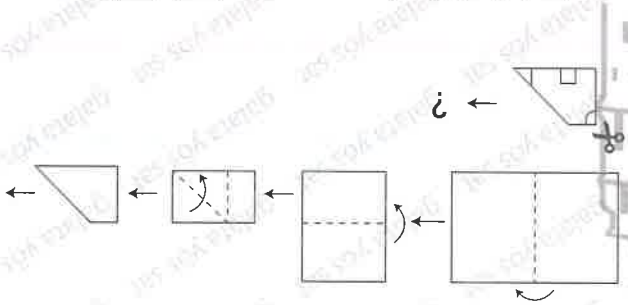
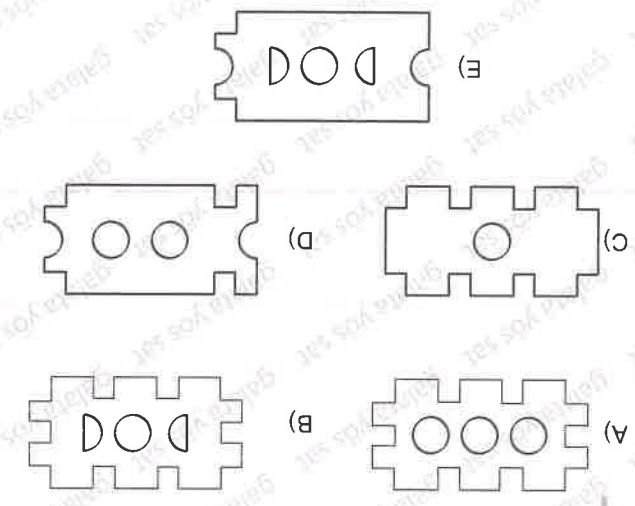
How many different ways is the word GÜZELLİK read, starting from the upper left corner, following the neighboring letters?

- A) 38 B) 35 C) 30 D) 25 E) 17



16. Şekildeki dikdörtgenin üzerinde bulunan 12 noktayı köşe kabul eden en fazla kaç tane üçgen çizilebilir?
How many triangles can be drawn in the figure as a corner? 12 points on the rectangle in the figure as a corner?

- A) 90 B) 108 C) 110 D) 112 E) 198



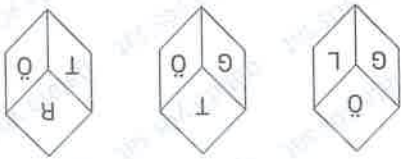
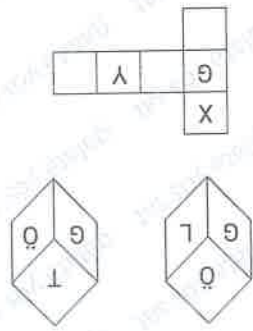
16.

14.

13.

15.

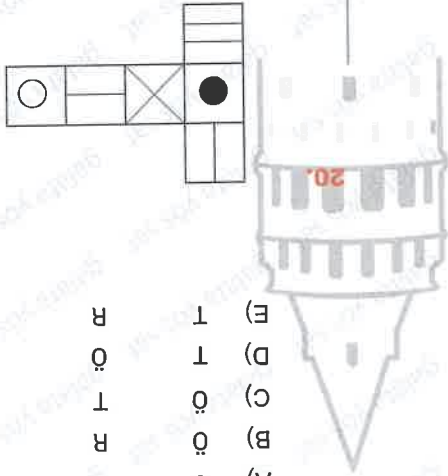
19.



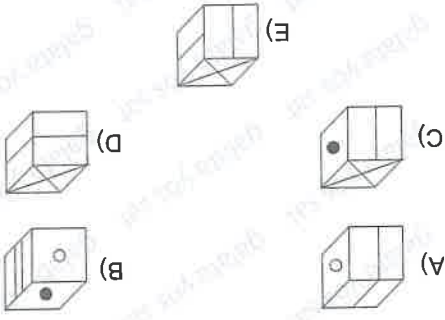
Yukarıdaki şekillerin tümü aynı küpü göstermektedir. Buna göre "X" ve "Y" küpün hangi yüzeylerini göstermektedir?

All of the shapes above show the same cube. Accordingly, which faces of the cube do "X" and "Y" show?

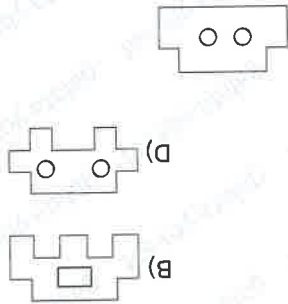
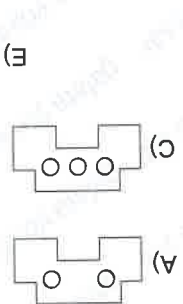
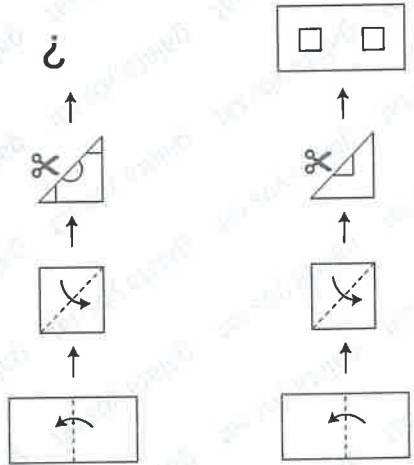
- | | |
|---|------|
| X | A) G |
| Y | B) Ö |
| | C) Ö |
| | D) T |
| | E) T |



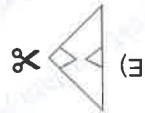
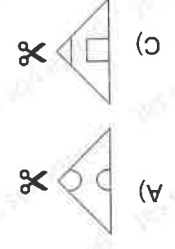
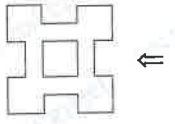
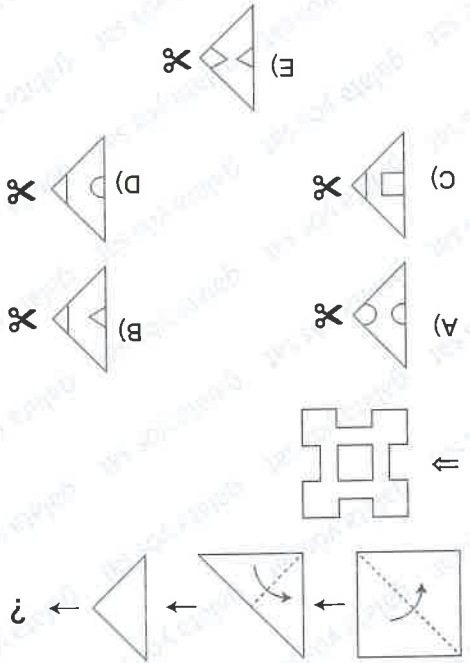
Diş yüzeylerinin açık hali yukarıda verilen küp aşağıdaki-lerden hangisidir ? Which of the following is the folded shape of the cube given unfolded above ?

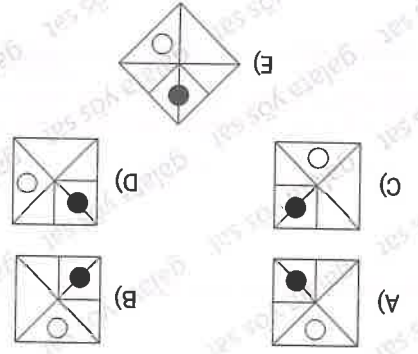
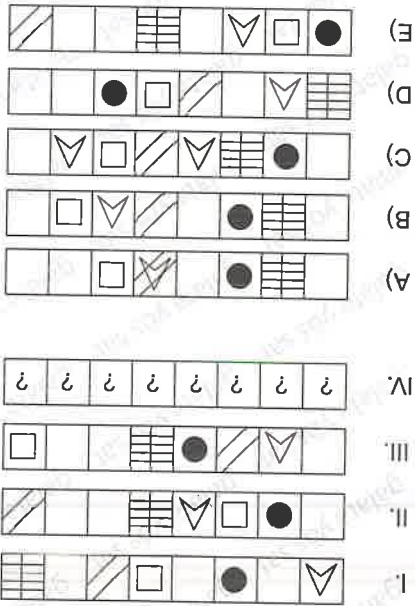
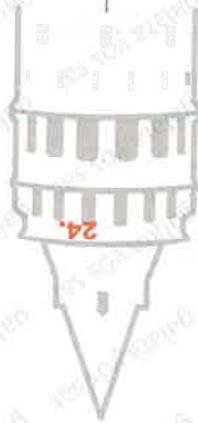
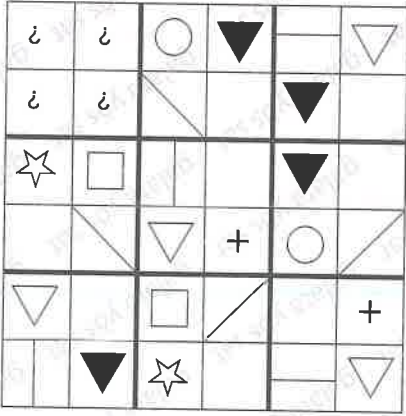
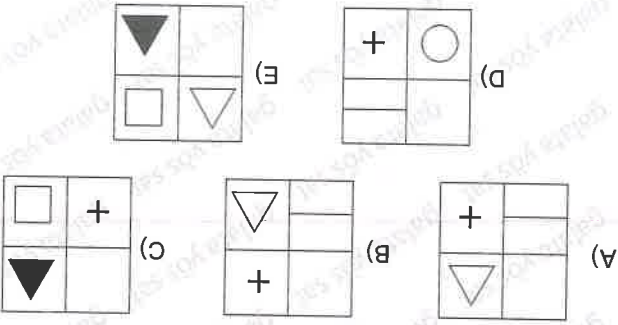


17.



18.





22. Aşağıdakilerden hangisi farklı? Which of the following is different?

- A) 1 2 2 0 1
- B) 2 2 1 1 2
- C) 3 1 2 1 2
- D) 0 3 1 3 3
- E) 1 2 1 0 3

III.	0	4	C
II.	1	1	B
I.	2	A	1

21.

- A) 36 B) 40 C) 46 D) 54 E) 65

$a^3 + b^3 = ?$

		b
	a	
10		

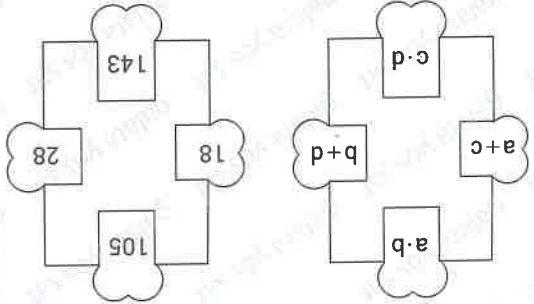
		b
	a	
6		

		b
	a	
10		

28.

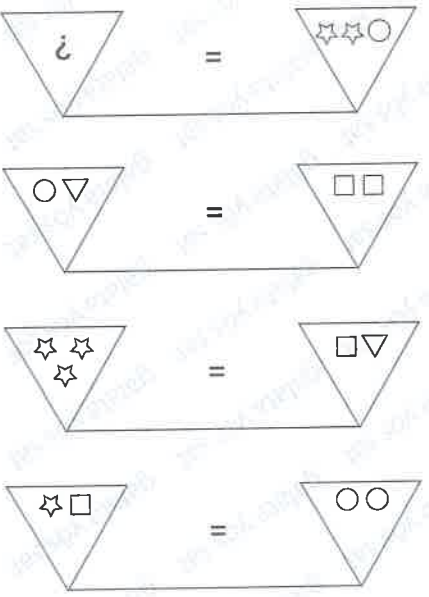
- A) 224 B) 232 C) 342 D) 448 E) 256

$a \cdot d + c \cdot b = ?$



26.

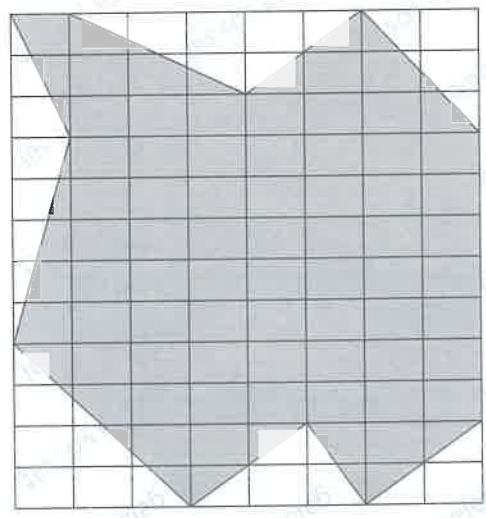
- A) □☆☆☆ B) ☆☆☆☆ C) ○△△
 D) △△△ E) □□□



27.

- A) 56 B) 62 C) 73 D) 75 E) 77

Taralı Alan = ?
 Shaded area = ?



25.

29.

- ✓ 28 = 72
- ✓ 36 = 63
- ✓ 17 = 50
- ✓ 29 = ?

- A) 89 B) 83 C) 90 D) 96 E) 99

1. $A = \begin{bmatrix} -2 & 1 & 4 & 5 \\ -1 & 3 & 2 & 1 \\ -3 & 2 & 6 & 3 \end{bmatrix} \Rightarrow \sum_{n=2}^{n=2} (a_{2n} + a_{n3}) = ?$

- A) 10 B) 11 C) 12 D) 13 E) 14

$K+L=?$

30. 1, 4, 5, 9, 6, 2, K, 3, 8, 23, 2, 11, 19, 3, L, 17, 5, 13

- A) 9 B) 14 C) 17 D) 23 E) 42

3. $A = \begin{bmatrix} x & 2 \\ 2 & -x \end{bmatrix}$ ve $A^2 = \begin{bmatrix} -5 & 12 \\ -5 & -12 \end{bmatrix} \Rightarrow x = ?$

- A) -3 B) -2 C) 2 D) 3 E) 6



2.

$$\begin{bmatrix} a & 1 \\ b & 3 \end{bmatrix} + \begin{bmatrix} -a & 2 \\ 4 & 3 \end{bmatrix} = \begin{bmatrix} 6 & 5 \\ 6 & 5 \end{bmatrix} \Rightarrow a \cdot b = ?$$

- A) -10 B) -5 C) 0 D) 5 E) 10

4. $f(x) = x^2 + 2x - 1$, $A = \begin{bmatrix} 1 & 2 \\ -1 & -1 \end{bmatrix} \Rightarrow f(A) = ?$

- A) $\begin{bmatrix} 3 & -4 \\ -2 & 3 \end{bmatrix}$
- B) $\begin{bmatrix} -2 & 4 \\ 2 & -2 \end{bmatrix}$
- C) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$
- D) $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$
- E) $\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$

7. $\begin{vmatrix} a & a-1 \\ 2 & 4 \end{vmatrix} = 16 \Rightarrow a = ?$

- A) 5
- B) 6
- C) 7
- D) 8
- E) 9

5. $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix} \Rightarrow A + A^T = ?$

- A) $\begin{bmatrix} 3 & 1 \\ -2 & 2 \end{bmatrix}$
- B) $\begin{bmatrix} 6 & 0 \\ 0 & 4 \end{bmatrix}$
- C) $\begin{bmatrix} 3 & -1 \\ -1 & 2 \end{bmatrix}$

8. $A = \begin{bmatrix} -1 & 2 & 0 \\ 1 & 3 & -1 \\ 2 & 4 & 5 \end{bmatrix} \Rightarrow \det A = ?$

- A) -33
- B) -27
- C) -19
- D) -14
- E) -5

D) $\begin{bmatrix} 6 & 1 \\ 1 & 4 \end{bmatrix}$

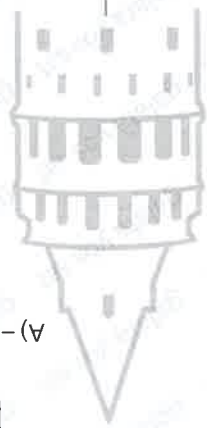
E) $\begin{bmatrix} 3 & 1 \\ 1 & 2 \end{bmatrix}$

6. $A = \begin{bmatrix} 2 & 1 \\ 5 & 3 \end{bmatrix}$, $A^{-1} + A^T = \begin{bmatrix} a & b \\ c & d \end{bmatrix} \Rightarrow a + b + c + d = ?$

- A) 6
- B) 7
- C) 8
- D) 9
- E) 10

9. $\begin{bmatrix} 2000 & 2001 & 2002 \\ 2003 & 2004 & 2005 \\ 2006 & 2007 & 2008 \end{bmatrix} = ?$

- A) -2008
- B) -2007
- C) 0
- D) 2007
- E) 2008



9.

8.

7.

$$10. A = \begin{vmatrix} 4 & 5 & 6 \\ 1 & 2 & 3 \\ x & y & z \end{vmatrix} = \begin{vmatrix} 4 & 5 & 6 \\ 1 & 2 & 3 \\ x-3 & y-3 & z-3 \end{vmatrix} = ?$$

- A) A-3
B) A+3
C) -A
D) 3A
E) A

$$13. P(x) = 2x^3 - (m+1)x^2 + (n-1)x + 3 \text{ polinomunun } x^2 - x + 3 \text{ ile bölümünden kalan } -4x + 9 \text{ olduğuna } m+n \text{ kaçtır?}$$

-4x+9 is the remainder from the division of the polynomial $P(x) = 2x^3 - (m+1)x^2 + (n-1)x + 3$ by $x^2 - x + 3$. What is $m+n$?

- A) 5
B) 6
C) 7
D) 8
E) 9

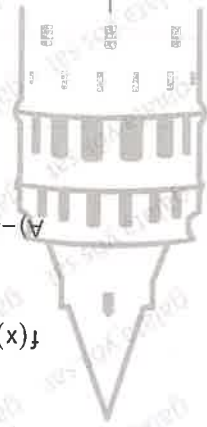
$$11. \frac{2^{x-y} + 2^x - 2^y - 1}{2^x - 1} = 33 \Rightarrow y = ?$$

- A) -6
B) -5
C) -4
D) -3
E) -2

$$f(x) = \begin{cases} 5x+3, & x > 3 \\ -15, & x = 3 \\ 7x+2, & x < 3 \end{cases} \Rightarrow f^{-1}(16) = ?$$

- A) -3
B) -2
C) -1
D) 1
E) 2

14. R de tanımlı $y=f(x)$ fonksiyonu $1-1$ ve örtendir. $f(x)$: injective and surjective function.



15. $x^2 - 6x + 4 = 0$ dekleminin kökleri a ve b dir. Buna göre, kökleri $\frac{b-2}{a}$ ve $\frac{a-2}{b}$ olan ikinci dereceden olan ikinci dereceden hangisidir?
The roots of the equation $x^2 - 6x + 4 = 0$ are a and b. So what is the quadratic with roots $\frac{b-2}{a}$ and $\frac{a-2}{b}$?

- A) $x^2 - 3x + 2$
B) $x^2 + 3x - 2$
C) $x^2 - x + 4 = 0$
D) $x^2 + x - 4 = 0$
E) $x^2 + 4x - 1 = 0$

12. $x, y, z \in R$
2x sayısının 5y sayısına olan uzaklığı A, 3y sayısının -7z sayısına olan uzaklığı B dir. A + B toplamı en küçük değerin alındığında $\frac{x+y}{z}$ oranı kaçtır?
The distance of 2x from the number 5y is A, and the distance from the number 3y to -7z is B. What is the $\frac{x+y}{z}$ ratio when the A + B total takes its smallest value?

- A) $-\frac{5}{37}$
B) $-\frac{6}{49}$
C) $-\frac{8}{41}$
D) $\frac{9}{52}$
E) $\frac{11}{42}$

16. $y = x^2 - 4ax + a + 1$ parabolünün tepe noktalarının geometrik yeri aşağıdakilerden hangisidir ?

Which of the following is the geometric location of the vertices of the $y = x^2 - 4ax + a + 1$ parabola?

A) $y = -x^2 - 4ax + a + 1$

B) $y = -x^2 + \frac{x}{2} + 1$

C) $y = x^2 + x + 1$

D) $y = -x^2 - 2x + 1$

E) $y = -x^2 + x - 2$

17. $x^2 - (m+1)x - 2m - 2 = 0$ denkleminin aynı işaretli iki gerçel kökü olduğuna göre, m nin en geniş tanım aralığı aşağıdakilerden hangisidir ?

Since the equation has two real roots with the same sign, which of the following is the widest domain of m?

A) $(-\infty, -1)$

B) $(-\infty, -9)$

D) $[-9, -1)$

E) $[-9, \infty)$

18. $18x = \pi$ olduğuna göre

$\frac{\sin 2x - \sin 6x + \sin 10x}{\cos 2x - \cos 6x + \cos 10x} = ?$

A) $-\frac{1}{2}$

B) $-\frac{1}{2}$

C) $\frac{\sqrt{3}}{2}$

D) 1

E) $\frac{\sqrt{3}}{2}$

19. Üç basamaklı sayıların kaç tanesinin en az bir basamağında 3 vardır ?
How many three-digit numbers have a 3 in at least one digit?

A) 210

B) 224

C) 252

D) 288

E) 292

20. $\binom{10}{12} + \binom{11}{4} + \binom{12}{5} = ?$

A) $\binom{11}{6}$

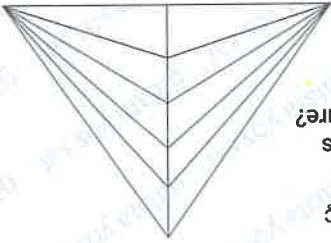
B) $\binom{12}{5}$

D) $\binom{13}{4}$

E) $\binom{13}{5}$

C) $\binom{12}{6}$

21. Yandaki şekilde kaç tane üçgen vardır ?
How many triangles are there in the figure?



A) 35

B) 60

C) 56

D) 42

E) 84

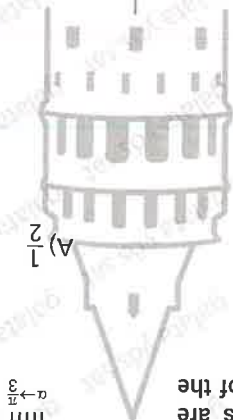
24. $|z - 2 + 2i| = |z| + |z + 2 + 2i|$ koşullunu sağlayan z karmaşık sayısının geometrik yer denklemini nedir ?
 A) $y - x = 0$
 B) $y + 4x + 9 = 0$
 C) $y - x + 8 = 0$
 D) $2y - 4x + 7 = 0$
 E) $2y + 4x + 17 = 0$

27. $y = x$ doğrusunun $A(1, 9)$ noktasına en yakın noktasının ordinatı kaçtır ?
 What is the ordinate of the closest point of the line $y = x$ to point $A(1, 9)$?
 A) 6
 B) 5
 C) 4
 D) 3
 E) 2

23. 3 negatif, 4 pozitif sayıdan üçü seçiliyor. Seçilen sayılardan 3 negatif ve 4 pozitif sayılar seçilirse, seçilen sayıların çarpımının pozitif olma olasılığı kaçtır ?
 Three of the 3 negative and 4 positive numbers are chosen. What is the probability that the product of the selected numbers is positive?

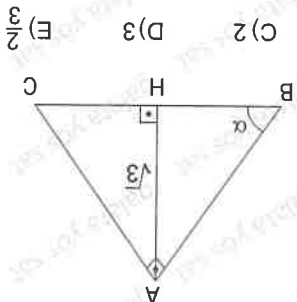
- A) $\frac{3}{35}$
 B) $\frac{1}{7}$
 C) $\frac{35}{16}$
 D) $\frac{35}{12}$
 E) $\frac{5}{1}$

26.



$$\lim_{\alpha \rightarrow \frac{\pi}{3}} |HC| = ?$$

- A) $\frac{1}{2}$
 B) $\frac{3}{3}$
 C) 2
 D) 3
 E) $\frac{3}{2}$



22. $\left(\frac{x^4 - 4x^2 + 4}{x^2} \right)^3$ ifadesinde sabit terim kaçtır ?
 What is the constant term in expansion?

- A) -96
 B) 120
 C) 80
 D) -120
 E) -160

25. $\log_a x - \log_a \sqrt[3]{bc} = ?$

- A) $\frac{6}{1}$
 B) $\frac{3}{1}$
 C) $\frac{2}{1}$
 D) 1
 E) 3

28. $z^3 + 27i = 0$ denkleminin köklerinden birisi aşağıdakilerden hangisidir?
Which of the following is one of the cube roots of the equation $z^3 + 27i = 0$?

- A) $3\sqrt[3]{\frac{2}{3i}}$ B) $\frac{2}{\sqrt{3}} + \frac{i}{2}$ C) $3\sqrt[3]{\frac{i}{2} + \frac{1}{2}}$
D) $4i$ E) $\frac{2}{3i}$

29. $\int_0^1 |x^2 - x - 6| dx = ?$

- A) $\frac{6}{81}$ B) $\frac{3}{25}$ C) $\frac{6}{71}$ D) $\frac{6}{61}$ E) 10

30. $\int_2^0 \sqrt{16-x^2} dx = ?$

- A) $\frac{4\pi}{5} + 2\sqrt{3}$ B) $\frac{3}{4\pi} + 2\sqrt{3}$ C) $3\pi + 2\sqrt{3}$
D) $\frac{3}{4\pi} + 3\sqrt{2}$ E) $4\pi + 3\sqrt{2}$

1. M (3,-2) olan ve yarıçapı 4 olan çemberin genel denklemi nedir?
What is the general equation for a circle with M (3,-2) and radius 4?

- A) $(x+3)^2 + (y-2)^2 = 16$
B) $(x-3)^2 + (y+2)^2 = 16$
C) $(x-3)^2 + (y+2)^2 = 9$
D) $(x-3)^2 + (y+2)^2 = 4$
E) $(x+3)^2 + (y+2)^2 = 16$

2. $(x-12)^2 + (y-9)^2 = 49$ olan çemberin merkezi ve r=?
Center and Radius = ?

- A) M(12, 9), r=7
B) M(12, 9), r=3
C) M(-12, -9), r=7
D) M(12, -9), r=7
E) M(12, 9), r=12

3. $(x-3)^2 + (y+2)^2 = k$ çemberinin merkezi orijinden geçtiğine göre k kaçtır?
since the center of the circle passes through the origin, k = ?

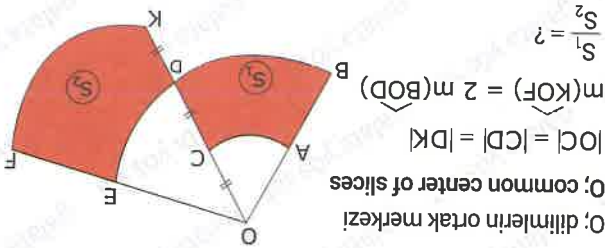
- A) 4
B) 9
C) $\sqrt{13}$
D) $2\sqrt{13}$
E) 13



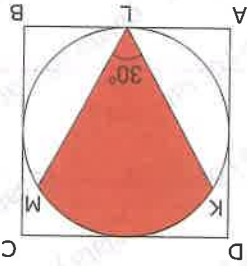
7. $3x^2 + 3y^2 - 6x + 6y + 3m - 9 = 0$ denklemi nin gember belirmesi için m 'nin alabileceği en büyük tam sayı değeri kaçtır ?

What is the maximum integer value m can take for the equation to indicate a circle?

- A) 2 B) 3 C) 4 D) 5 E) 6



- A) $\frac{5}{3}$ B) $\frac{5}{4}$ C) 1 D) $\frac{10}{3}$ E) $\frac{5}{2}$



- A) $32 + \frac{3}{2}\pi$ B) $\frac{3}{2}\pi + 16$ C) $\frac{3}{2}\pi$ D) $\frac{3}{2}\pi + 36$ E) $\frac{3}{2}\pi + 64$

4. $2x^2 + 2y^2 - 8x + 12y - 24 = 0$

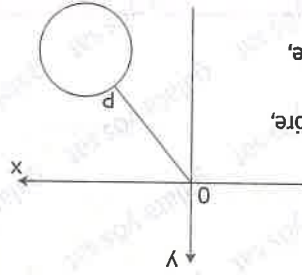
denklemini sağlayan gemberin gapı nedir ?
 what is the diameter of the circle that satisfies the equation?

- A) 4 B) 5 C) 6 D) 10 E) 12

5. I. $x^2 + y^2 + 7x - 8y = 0$
 II. $x^2 + y^2 = 64$
 III. $(x - 3\sqrt{3})^2 + (y - \sqrt{5})^2 = 32$

hangi gember orfinden geçer ?
 Which circle goes through the origin?

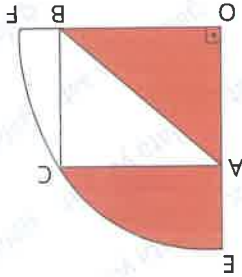
- A) I. ve II. B) I. ve III. C) yalnız II. D) II. ve III. E) I. II. III.



olan gemberde P noktası
 gemberin üzerinde olduğuna göre,
 $\min |OP| = ?$
 Since the point P is on the circle,
 $\min |OP| = ?$

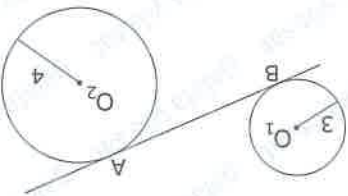
- A) 25 B) 24 C) 18 D) 14 E) 7

10. O: çeyrek dairenin merkezi
 OBCA; kare
 OBCA; square
 Taralı alan
 $\frac{A(\text{çeyrek dairenin})}{\text{Taralı alan}} = ?$
 Shaded area
 $\frac{\text{Area of the quarter circle}}{\text{Shaded area}} = ?$



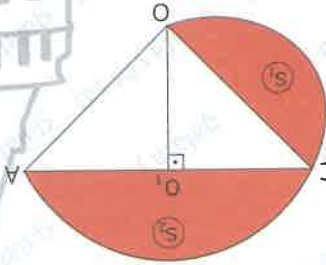
- A) $\frac{1}{2}$ B) $\frac{3}{1}$ C) $\frac{1}{4}$ D) $\frac{1}{5}$ E) $\frac{3}{2}$

13. A ve B teğet noktalar
 $|O_1O_2| = ?$
 $|AB| = 24$



- A) 18 B) 20 C) 24 D) 25 E) 30

11. O: AC çemberin merkezi



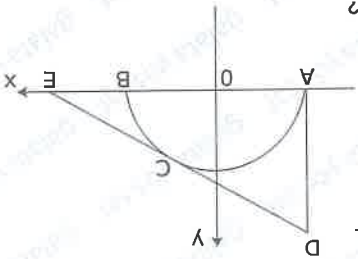
O: center of AC circle
 O₁: center of OC circle
 O₁: Center of OC circle

$[AC] \perp [OQ]$

$\frac{S_1}{S_2} = ?$

O₁: Center of OC circle
 O: center of AC circle

A ve C; teğet noktalar
 E'nin koordinat toplamı?
 A and C; tangent points
 coordinate sum of E?

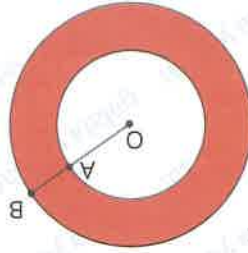


14. O: merkezi dik koordinat düzleminde
 O: center
 $|AO| = 2$
 $|DC| = 4$



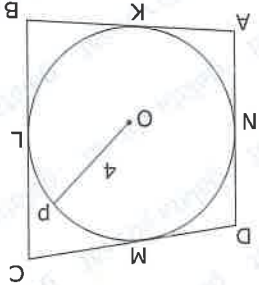
- A) 3 B) 3,5 C) $\frac{3}{10}$ D) 4 E) $\frac{2}{9}$

12. O: dairelerin ortak merkezi;
 O: common center of the circles.
 $\frac{|OA|}{|OB|} = \frac{7}{3}$
 Taralı alan 80π ise
 büyük dairenin yarıçapı nedir?
 If the shaded area is 80π
 what is the radius of the big circle?



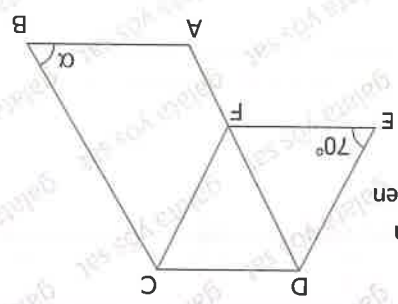
- A) 3 B) 4 C) 7 D) $7\sqrt{2}$ E) $10\sqrt{2}$

15. ABCD: teğetler dörtgeninde / ABCD: tangent quadrilateral
 O: çemberin merkezi / O: Center of the circle
 $|OP| = 4$
 $|AK| + |BL| + |CM| + |DN| = 13$
 $A(ABCD) = ?$



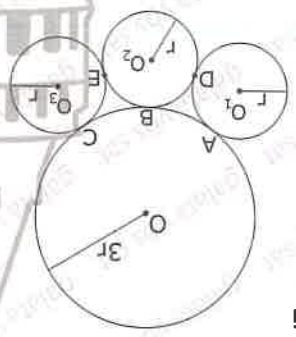
- A) 26 B) 39 C) 52 D) 60 E) 104

18. ABCD; paralelkenar
 CDEF; eşkenar dörtgen
 CDEF; rhombus
 $m(\widehat{DEF}) = 70^\circ$
 $m(\widehat{ABC}) = \alpha = ?$



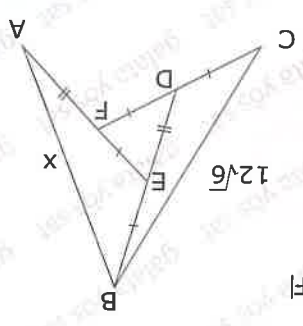
- A) 55 B) 70 C) 85 D) 100 E) 125

17. O_1, O_2, O_3 çemberin merkezi
 O_1, O_2, O_3 teğet noktalar
 A, B, C, D, E; teğet noktalar
 $m(\widehat{AB}) = 68^\circ$
 $m(\widehat{CB}) = ?$



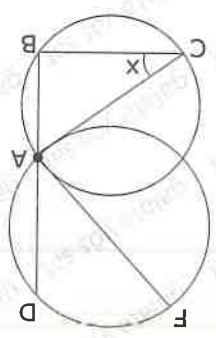
- A) 34 B) 35 C) 56 D) 60 E) 68

20. $BE = |EF| = |CD| = |DF|$
 $|ED| = |AF|$
 $|BC| = 12\sqrt{6}$
 $|AB| = x = ?$



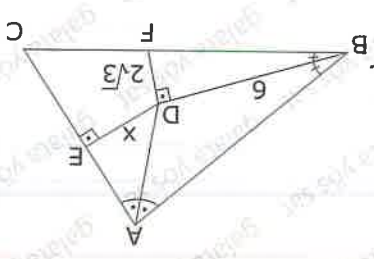
- A) $3\sqrt{6}$ B) $4\sqrt{6}$ C) $6\sqrt{6}$
 D) $12\sqrt{6}$ E) $24\sqrt{6}$

16. İki çember A noktasında
 dik kesişiyor.
 The two circles intersect
 at point A perpendicularly.
 $m(\widehat{AD}) = 100$
 $[FA] \vee [AC]$ teğet doğrular
 $[FA]$ and $[AC]$ are tangent lines.
 $m(\widehat{BCA}) = x = ?$



- A) 30 B) 40 C) 50 D) 80 E) 100

19. ABC üçgen
 $[BD] \perp [DF]$
 $[DE] \perp [AC]$
 $[AD] \vee [BD]$ açıortay
 $[AD]$ and $[BD]$ bisector
 $|DF| = 2\sqrt{3}$
 $|BD| = 6$
 $|DE| = x = ?$



- A) 2 B) 3 C) 4 D) $4\sqrt{3}$ E) $6\sqrt{3}$

5.

G	A	8
7	L	T
Y	9	S

1'den 9'a kadar olan rakamlar her bir satır, sütun ve köşegendeki sayıların toplamı 15 olacak şekilde yukarıdaki tabloya yerleştiriliyor. Buna göre $G+T+S = ?$ sum of each row, column and the numbers on the diagonal is 15.

$$\Rightarrow G + T + S = ?$$

- A) 17 B) 16 C) 15 D) 14 E) 13

7.

		z
	y	
x		

Yukarıdaki tabloda boş kutulara 8,9,10 ... 16 sayıları yazılacaktır. Satır, sütun ve köşegen toplamları eşit olması koşullu ile $x+y+z = ?$

In the above table, the numbers 8,9,10 ... 16 will be written in the empty boxes. The conditions for equal rows and diagonal sums must be met.

$$\Rightarrow x + y + z = ?$$

- A) 34 B) 35 C) 36 D) 37 E) 38

6.

	x	11
	17	
12		

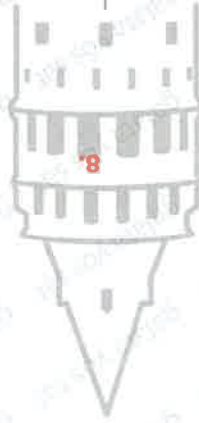
Yukarıdaki tablounun boş kalan yerlerine 7, 8, 9, 10, 13, 15 sayıları satır, sütun toplamları eşit olacak şekilde yerleştiriliyor.

Buna göre "x" yerine hangi sayı gelmelidir ?

In the above table, the numbers 7, 8, 9, 10, 13, 15 will be placed in the empty places in a row and the sum of the columns will be equal.

Accordingly, which number will replace "x"?

- A) 7 B) 8 C) 9 D) 10 E) 13



			13
	14	A	
3		9	

Yukarıdaki tablounun satır, sütun ve köşegenindeki sayıların toplamı eşit olduğuna göre, A sayısı kaçtır ?

Since the sum of the rows, columns and diagonal numbers of this square is equal, what is the number A?

- A) 2 B) 4 C) 7 D) 8 E) 12

9. ve 10. sorular aşağıdaki bilgilere göre cevaplandırılacaktır.

Questions 9 and 10 will be answered according to the following information.

	P	
Q	R	

Yukarıdaki tabloya 1'den 9'dan kadar olan sayılar her kutucuğa 1'er sayı gelecek şekilde yazılıyor.

In the table above, the numbers from 1 to 9 are written with 1 number in each box.

P bulundugu satir ve sutunun en buyuk sayisidir.

P is the largest number of the row and column in which it is located.

R ve Q bulunduklari sutunlarin en kucuk sayilardir. R and Q are the smallest numbers of columns in which they exist.

9. $P + R + Q$ toplamı en az kaçtır ?
What is the minimum sum of $P + R + Q$?

- A) 10 B) 9 C) 8 D) 7 E) 6

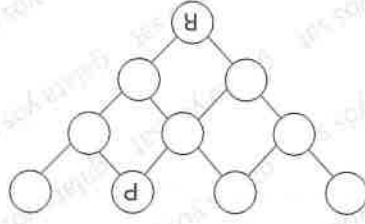
10. $P + R + Q$ toplamı en fazla kaçtır ?
What is the maximum sum of $P + R + Q$?

- A) 20 B) 19 C) 18 D) 17 E) 16

11.



12.

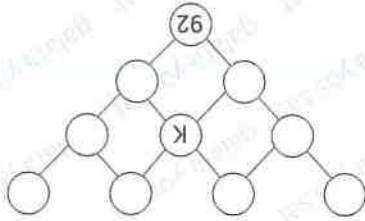


Yukarıdaki sayı üçgenine göre R'nin P cinsinden eşiti aşağıdakilerden hangisidir ?
What is R in terms of P in the triangle above ?

- A) $4P-6$ B) $4P$ C) $6P+10$
D) $8P+4$ E) $8P-4$

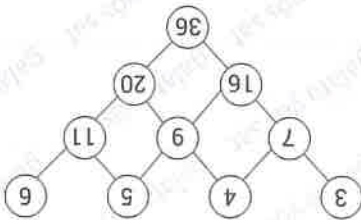
Yukarıdaki sayı üçgeninde K kaçtır ?
In the triangle of numbers above, what is K?

- A) 28 B) 27 C) 25 D) 23 E) 21



Satırdaki kutucuklara soldan sağa doğru artan ardışık sayılar yazılacaktır. Sonra yan yana olan iki sayının toplamı çizgilerin birleştiği alt satırdaki gembere yazılacaktır.

The numbers in the row will be written consecutive numbers increasing from left to right. Then the sum of the two numbers next to each other will be written on the circle in the bottom line where the lines meet, and the number triangle will be completed.



I. Satır / Line I

II. Satır / Line II

III. Satır / Line III

IV. Satır / Line IV

Questions 11 and 12 will be answered according to the information below.

11. ve 12. sorular aşağıdaki bilgilere göre cevaplandırılacaktır.

Özellik Feature

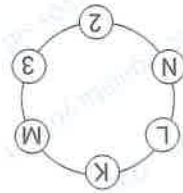
Özellik Feature

14. Boş bir abaküze 17 boncuk dizilerek aşağıdaki sayılardan hangisi oluşturulamaz?

Which of the following numbers cannot be formed by arranging 17 beads on an empty abacus?

- A) 57032 B) 90800 C) 27145
D) 33335 E) 54323

Yükarıdaki şekilde gösterilen dairede birer sayı vardır. Bu sayılardan her biri kendine komşu olan sayıların çarpımına eşit olduğuna göre; $K+L+M+N = ?$



There is a number in each circle. Since each of these numbers is equal to the product of the numbers adjacent to it,

$$K + L + M + N = ?$$

- A) 1 B) 3 C) 5 D) 7 E) 9

15.

Aşağıdaki abaküslerin hangisinde oluşturulan sayı; The number generated in which of the following abacuses,

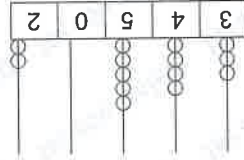
- 3 ile tam bölünebilir / 3 divided by 3 complete
- tek sayı olma / being odd number
- 4 basamaklı olma / being 4 digits

özelliklerinden hepsini sağlar ? provides 3 of the features ?

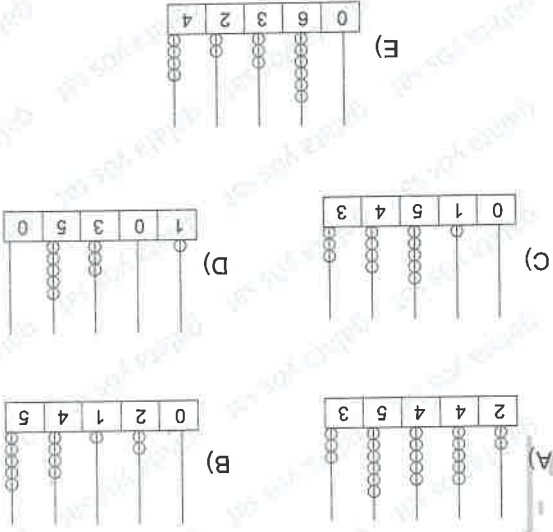
14. ve 15. sorular aşağıdaki bilgilere göre cevaplandırılacaktır.
14th and 15th questions will be made according to the following feature.

Bes gubgu olan bir abaküsün her bir gubğuna en fazla 9 tane boncuk dizilecek bir sayı oluşturuluyor, istenen gubuk boş bırakılıyor.

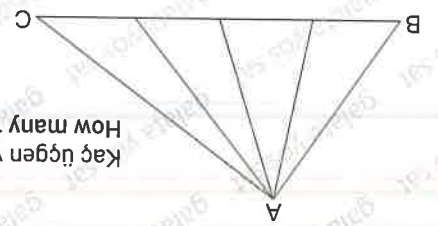
In an abacus with five sticks, a maximum of 9 beads is arranged on each rod and a number is formed. The desired rod is left blank



örneğin yukarıdaki abaküze 14 boncuk dizilerek 34502 sayısı oluşturuluyor.
For example, the number 34502 is created by arranging 14 beads in the above abacus.



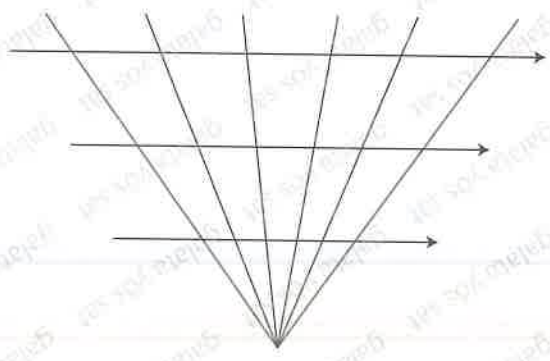
16.



Kaç üçgen vardır ?
How many triangles are there?

- A) 10 B) 12 C) 14 D) 16 E) 20

18.



Şekilde paralel olan üç doğru ile bu doğrulari kesen 6 noktada doğru görülmektedir. Bu 9 doğru kaç üçgen belirtir ?
In the figure, three parallel lines and 6 points intersecting these lines are shown. How many triangles do these 9 lines indicate?

- A) 15 B) 18 C) 40 D) 45 E) 60

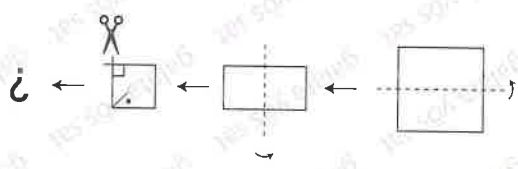
19.



Saat 12:35 te akrep ile yelkovan arasındaki açı kaç derecedir ?
What is the angle between the hour and minute hand at 12:35 o'clock?

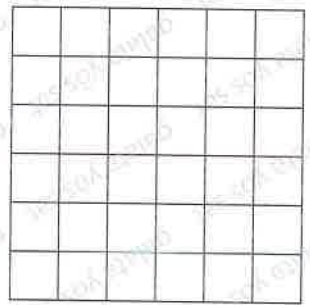
- A) 180 B) 192,5 C) 195,5 D) 200 E) 205,5

20.



- A) B) C) D) E)

Yükarıdaki şekil 36 birim kareden oluşmuştur. Alanı 12 br² olan kaç farklı dikdörtgen vardır ?
It consists of 36 unit squares. How many different rectangles are there in the square with an area of 12 ?

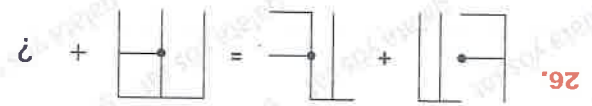


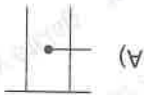
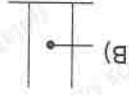
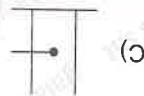
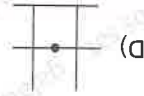
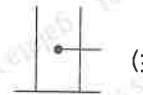
- A) 12 B) 24 C) 34 D) 36 E) 34

17.

25. $6 \frac{3}{4} = 12$
 $\frac{1}{11} \frac{3}{4} = \frac{3}{44}$
 $8 \frac{4}{3} = 12$
 $\frac{6}{5} \frac{3}{2} = ?$

- A) $\frac{3}{13}$ B) $\frac{3}{13}$ C) $-\frac{6}{13}$ D) $\frac{6}{13}$ E) 13

26. 

- A) 
 B) 
 C) 
 D) 
 E) 

27. $\frac{KLM}{971} + \frac{NLK}{399} = \frac{KLM}{NLK} = ?$

- A) 634 B) 783 C) 731 D) 752 E) 682

30.

TUZLAĞÖZÜ = UAÖÜZGLZT
 KADİFEDEN = KDFDNIÉE
 MERAKLISI = EKİİSLARM
 VALIKAVAK = ?

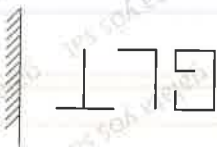
- A) AVAIKKAL B) KVLYAIAA
 C) AIAAKVLY D) AAVIKKLA
 E) AVAIKKAL

29. $a^2 - b^2 = 2b$
 $a^2 - b^2 = \frac{2}{3} + \frac{2}{3}$
 (8A9)H9 = ?

- A) $\frac{3}{16}$ B) $\frac{9}{32}$ C) $\frac{9}{16}$ D) $\frac{16}{3}$ E) $\frac{16}{9}$

Şeklin düzlem aynadaki görüntüsü aşağıdakilerden hangisidir?
 Which of the following is the plane mirror image of the figure?

Düzlem Ayna / Plane Mirror



28.

1. Anne, Baba ve 6 çocuklu aile yuvarlak masa etrafında anne ile baba arasına çocuklardan biri oturmak üzere kaç farklı oturabilir?

How many different ways can a family, parent and 6 children sit around the round table, between the mother and the father one of the children sitting?

A) 12.5i B) 5.5i C) 2.5i

D) 5i E) $\frac{5i}{2}$

2. Birbirinde farklı 2 kırmızı, 2 sarı, 2 mavî top yan yana sıralandığında 2 mavî topun yan yana olma olasılığı kaçtır?

When 2 red, 2 yellow and 2 blue balls are lined up, what is the probability that 2 blue balls are next to each other?

A) $\frac{3}{2}$ B) $\frac{2}{1}$ C) $\frac{5}{2}$ D) $\frac{3}{1}$ E) $\frac{4}{1}$

3. Aşağıdakilerden hangisi bir dizinin genel terimi olamaz?

Which of the following cannot be the general term of a sequence?

A) 0

B) $\frac{n+1}{n}$

C) $\frac{2n-1}{n^2}$

D) $\frac{n^2-2}{n}$

E) $\frac{n^2}{n^2-1}$

$$7. (a_n) = \left(\frac{2n^2 - 5n + 12}{n+2} \right)_{n \in \mathbb{Z}}$$

$a_n \in \mathbb{Z}$ için $\sum_{n=1}^{\infty} a_n = ?$

A) 21

B) 39

C) 57

D) 68

E) 84

$$4. (a_n) = \binom{n+1}{n!} \Rightarrow a_6 = ?$$

A) 20 B) 24 C) 30 D) 40 E) 60

$$8. (a_{3n-2}) = \binom{6n+2}{9n-2} \Rightarrow (a_n) = ?$$

A) $\frac{3n-2}{2n-2}$

B) $\frac{3n+4}{2n+6}$

D) $\frac{3n-2}{2n+4}$

E) $\frac{3n-9}{2n+6}$

C) $\frac{3n-1}{2n-1}$

$$6. a_n = \begin{cases} 2n-1, & n \text{ tek ise / odd} \\ 3n+2, & n \text{ çift ise / even} \end{cases} \Rightarrow 3 \cdot a_6 - 6a_5 = ?$$

A) 3

B) 6

C) 12

D) 24

E) 48

$$5. a_n = \frac{3n-5}{2n+3} \Rightarrow a_5 - a_3 = ?$$

A) $\frac{13}{9}$

B) $\frac{117}{38}$

C) $\frac{117}{78}$

D) $\frac{117}{111}$

E) $\frac{117}{142}$

9. Genel terim $(a_n) = \frac{n^2 + 3n + 2}{1}$ olan dizinin ilk 10 teriminin toplamı kaçtır ?

What is the sum of the first 10 terms of the sequence?

- A) $\frac{11}{3}$ B) $\frac{11}{3}$ C) $\frac{12}{5}$ D) $\frac{12}{7}$ E) $\frac{4}{3}$

terimleri geometrik dizinin ardışık terimleridir. terms are sequential terms of the geometric sequence.

13. $\left(\frac{3}{5}, a, b, c, d, \frac{96}{5}\right)$

$$\Rightarrow \frac{a+b}{c+d} = ?$$

- A) 1 B) 2 C) 3 D) 4 E) 6

10. İlk terimi -5 ve ortak farkı $\frac{3}{4}$ olan aritmetik dizinin 15. terimi kaçtır ?

What is the 15th term of the Arithmetic sequence with the first term -5 and the common difference $\frac{3}{4}$?

- A) $\frac{3}{4}$ B) $\frac{3}{8}$ C) $\frac{3}{41}$ D) $\frac{3}{43}$ E) $\frac{4}{6}$

14. $0,33 + 0,006 + 0,0006 + \dots = ?$

- A) $\frac{37}{1}$ B) $\frac{900}{101}$ C) $\frac{900}{111}$ D) $\frac{300}{101}$ E) $\frac{300}{111}$

11. İkinci terimi 2 ve ortak garpanı $\frac{1}{3}$ olan bir geometrik dizinin dördüncü terimi kaçtır ?

What is the fourth term of a geometric sequence with the second term 2 and the common factor $\frac{1}{3}$?

- A) $\frac{1}{3}$ B) $\frac{9}{2}$ C) $\frac{1}{3}$ D) $\frac{3}{2}$ E) 3

15. $\sum_{n=2}^{\infty} (3 \cdot 4^n - 2 \cdot 3^{2-2n}) = ?$

- A) $-\frac{1}{3}$ B) $-\frac{1}{4}$ C) $-\frac{1}{6}$ D) $-\frac{1}{12}$ E) 0

12. Bir (a_n) aritmetik dizisinde a_n : aritmetik sequence

$$a_6 + a_7 = 38 \text{ ve } a_7 + a_8 = 64 \Rightarrow a_{12} = ?$$

- A) 60 B) $\frac{121}{2}$ C) 62 D) 63 E) $\frac{181}{2}$

16. $\sum_{x=1}^{n-1} a \cdot \left(\frac{5}{4}\right)^x = 20 \Rightarrow a = ?$

- A) 9 B) 7 C) 5 D) 3 E) 1

17. $P(x)+P(1)+P(2)=x^2+x+2 \Rightarrow P(0)=?$

- A) -4 B) -2 C) 0 D) 1 E) 4

21. Gerçel sayılarda tanımlı $f(x)=3x^2-ax-b$ fonksiyonu nun grafiği $x=1$ apsisi noktasında x eksenine teğettir. Buna göre, $a \cdot b$ kaçtır?
The graph of the function $f(x)=3x^2-ax-b$ defined in real numbers is tangent to the x axis at the point with $x=1$ abscissa, what is $a \cdot b$?

- A) -24 B) -18 C) -12 D) -6 E) -3

18. $a \in \mathbb{R}$ $\sum_{k=0}^{n-1} (2k+a) = 70$ $a = ?$

- A) 5 B) 6 C) 7 D) 8 E) 9

19. $\begin{cases} x = e^{\tan t} \\ y = e^{\sec t} \end{cases}$ x ile y arasındaki bağıntı nedir? What is the relation between x and y ?

- A) $\ln^2 x + \ln^2 y = 1$
B) $\ln^2 x - \ln^2 y = 1$
C) $\ln^2 y - \ln^2 x = 1$
D) $\ln x - \ln y = 1$
E) $\ln x + \ln y = 1$

20. $g(x)$ doğrusal fonksiyon olmak üzere / $g(x)$: linear function

$$f(x) = \begin{cases} 2x+4, & x < 0 \\ g(x), & 0 \leq x < 2 \\ 3x, & x \geq 2 \end{cases}$$

$f(x)$ fonksiyonu gerçel sayılarda sürekli olduğuna göre $f(x)$ sürekli in real numbers.
 $\Rightarrow \lim_{x \rightarrow 1} g(x) = ?$

- A) 3 B) 4 C) 5 D) 6 E) 7

22. Dikdörtgen biçimindeki bir arsanın uzun kenarları 2 sıra, kısa kenarları 3 sıra tel ile çevrilmiştir. Bu sistem için 480 m tel kullanıldığını göre, bu arsanın en fazla kaç metrekaaredir?

The long sides of a rectangular plot are surrounded by 2 rows of wire and the short sides by 3 rows of wire. Since 480 m of wire is used for this process, how many square meters is this plot?

- A) 1600 B) 2400 C) 2500 D) 3000 E) 3600

23.

$$\int_4^0 f(4-x) dx = 4 \Rightarrow \int_4^0 f(x) dx = ?$$

- A) -4 B) -2 C) 0 D) 2 E) 4

24. $\frac{6 \cos^2 2x - 3}{\cos 4x} = ?$

- A) 3 B) 2 C) 1 D) -2 E) -3

25. $z^2 = -1 = \frac{z-i}{2-i} - \frac{i}{1-i} = ?$

- A) -2i B) -i C) 0 D) 2 E) 2i

29. $! = \sqrt{-1}$, $A = \begin{bmatrix} 2+i & 1-i \\ 1+i & 2-i \end{bmatrix}^{2 \times 2} \Rightarrow \det(3A) = ?$

- A) 3 B) 9 C) 18 D) 27 E) 81

26. $a^2 - 2a + \frac{1}{4} = 0 \Rightarrow \left(1 + \frac{2a}{1-2a}\right)^2 = ?$

- A) 7 B) 6 C) 5 D) 4 E) 3

30. $\left| \begin{matrix} a-3 & 5 \\ 2a & 4 \end{matrix} \right| > 0 \Rightarrow \min(a \in \mathbb{Z}) = ?$

- A) -2 B) -1 C) 0 D) 1 E) 2

27. $a \begin{bmatrix} 3 \\ 2 \end{bmatrix} + b \begin{bmatrix} 1 \\ 4 \end{bmatrix} = \begin{bmatrix} 4 \\ -2 \end{bmatrix} \Rightarrow a \cdot b = ?$

- A) 4 B) 2 C) -2 D) -4 E) -6

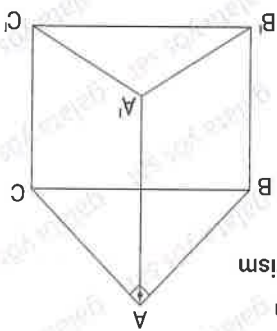
28. $\alpha \in \left[0, \frac{\pi}{2}\right)$

$A = \begin{bmatrix} 2 & -1 \\ 4 \cos 2\alpha & -1 \end{bmatrix}$, $B = \begin{bmatrix} 1 & \cos \alpha \\ 4 & -1 \end{bmatrix}$ ve

$\det A = \det B \Rightarrow \alpha = ?$

- A) $\frac{1}{2}$ B) $\frac{\pi}{8}$ C) $\frac{\pi}{6}$ D) $\frac{\pi}{4}$ E) $\frac{\pi}{3}$

(A'B'C, ABC) dik üçgen prizma
(A'B'C, ABC) right triangular prism



üçgen prizmanın hacmi nedir ?

$|BB'| = 50$

$|B'A'| = 15$

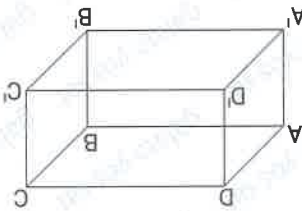
$|BC| = 25$

What is the volume of a triangular prism?

- A) 2250 B) 2500 C) 2700 D) 3500 E) 7500

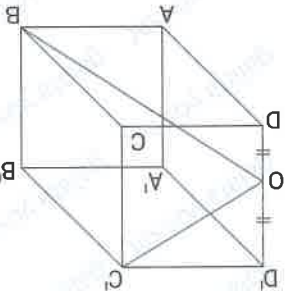
Geometri Geometry

2. (A'B'C'D', ABCD) dikdörtgen prizma
 |A'B'| = 7
 |B'C'| = 8
 |C'D'| = 5
 prizmanın alanı?
 area of prism?
 A) 250 B) 260 C) 262 D) 270 E) 280

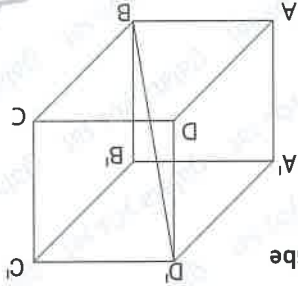


5.

- (ABCD, A'B'C'D') küp / cube
 |OD'| = |OD|
 $\frac{|OC'|}{|OB'|} = ?$
 A) $\frac{4}{\sqrt{5}}$ B) $\frac{3}{\sqrt{5}}$ C) $\frac{2}{\sqrt{5}}$ D) $\sqrt{5}$ E) $2\sqrt{5}$



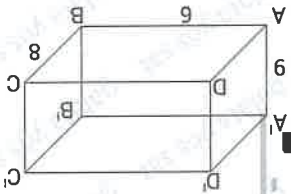
3. (ABCD, A'B'C'D') küp / cube
 |BD'| = $7\sqrt{3}$
 küpün hacmi = ?
 volume of cube = ?



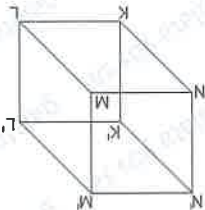
- A) 49 B) $49\sqrt{3}$ C) 341 D) 343 E) 479

7.

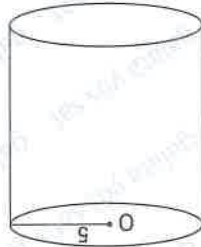
- (ABCD, A'B'C'D') dikdörtgen prizmanın hacmi V_1 : volume of rectangular prism
 $V_1 = V_2$
 |AB| = 6
 |BC| = 8
 |AA'| = 9
 A) 12 B) 16 C) 18 D) 20 E) 24



- (KLMN, K'L'M'N') kare prizma
 V₂: kare prizmanın hacmi
 V₁: square prism volume
 |KL| = $3\sqrt{3}$
 |M'L'| = ?



4. Hacmi 625π yarıçapı 5 olan silindirin yanal alanı nedir?
 What is the lateral area of the cylinder with volume 625π and radius 5?

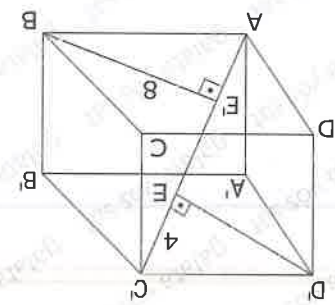


- A) 100π B) 125π C) 225π D) 250π E) 500π

6.

- Hacmi yanal alanına eşit olan kare prizmanın taban alanı kaçtır?
 What is the base area of a square prism whose volume is equal to its lateral area?

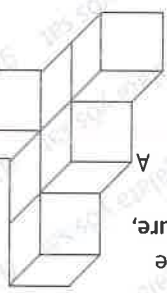
- A) 4 B) 8 C) $4\sqrt{2}$ D) 16 E) 32



(ABCD, A'B'C'D') küp / cube
 $|EC'| = 4, |BE'| = 8$
 $[D'E'] \perp [AC'], [BE'] \perp [AC']$
 $|EE'| = ?$

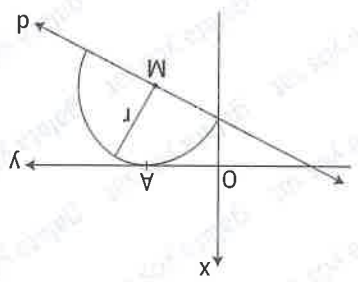
- A) 8 B) 10 C) 12 D) 16 E) 18

9. Şekildeki birim küplerde
 in unit cubes in the figure,
 $|AA'| = ?$



- A) $2\sqrt{2}$ B) $\sqrt{5}$ C) $\sqrt{13}$ D) $\sqrt{14}$ E) $\sqrt{15}$

11. M merkezli çember
 A noktasında teğet
 olduğuna göre
 Since the circle
 centered M is
 tangent at point A,
 $d : y = -\frac{\sqrt{3}}{3}x - 2\sqrt{2}$
 $= r = ?$



- A) $\sqrt{6}$ B) $4\sqrt{2}$ C) $6\sqrt{2}$ D) $6\sqrt{3}$ E) $12\sqrt{2}$

10. $(x - 7)^2 + (y - 2)^2 = r^2$ olan çember $3x + 4y + 1 = 0$
 doğrusuna teğet olduğuna göre çemberin yarıçapı nedir ?
 Since the circle with $(x - 7)^2 + (y - 2)^2 = r^2$ is tangent to
 the line $3x + 4y + 1 = 0$, what is the radius of the circle?

- A) 4 B) 5 C) 6 D) 8 E) 10

12. $(x - 2)^2 + (y + 4)^2 = 1$
 $(x + 1)^2 + y^2 = 2$
 olan çemberin en yakın iki noktası arasındaki uzaklık
 nedir ?
 What is the distance between the two closest points
 of the circle?

- A) $\sqrt{2}$ B) $4\sqrt{2}$ C) $4\sqrt{2} - 2$
 D) $4 - \sqrt{2}$ E) $4 + \sqrt{2}$

15. O_1 ve O_2 çemberin merkezi

O_1 and O_2 center of the circles

A ve B teğet noktaları

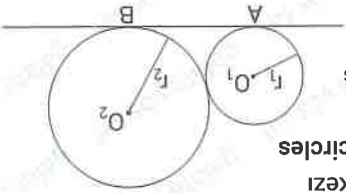
A and B tangent points

$$|O_1O_2| = 25$$

$$|AB| = 20$$

$$r_2 - r_1 = ?$$

- A) 5 B) 10 C) 15 D) 20 E) 25



13. $(x-2)^2 + (y-8)^2 = 4$

olan çember üzerindeki A(1,2) noktasında çizilen

teğetin denklemini nedir ?

What is the equation of the tangent drawn at point A

(1,2) on the circle?

A) $x+10y+19=0$

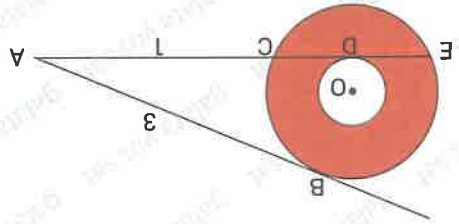
B) $x+6y-13=0$

C) $x-10y+19=0$

D) $x-6y+13=0$

E) $10x-y+21=0$

14.



O : çemberlerin ortak merkezi

O : common center of circles

B ve D: teğet noktaları

B and D: tangent points

$$|AB| = 3$$

$$|AC| = 1$$

$$TA = ?$$

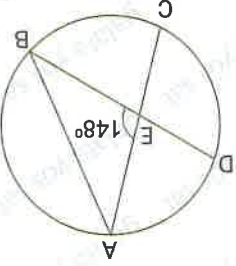
- A) 4π B) 8π C) 9π D) 16π E) 24π

16. $|AB| = |BD| = |AC|$

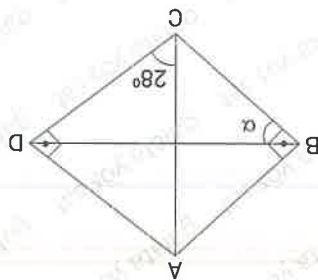
$$m(\widehat{AEB}) = 148^\circ$$

$$m(\widehat{CD}) = ?$$

- A) 64 B) 100 C) 112 D) 128 E) 132

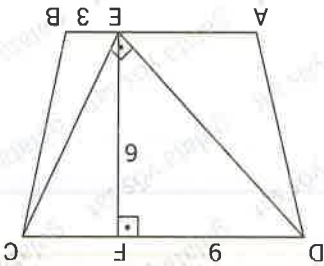


17. ABCD dörtgeninde
 $[AB] \perp [BC]$
 $[AD] \perp [CD]$
 $m(\widehat{ACD}) = 28^\circ$
 $m(\widehat{CBD}) = \alpha = ?$



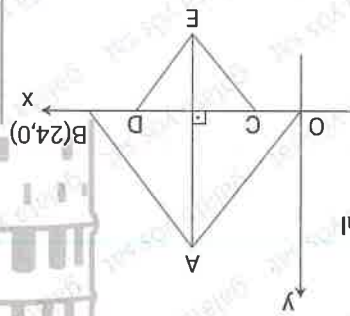
- A) 28 B) 42 C) 56 D) 62 E) 132

19. $[AB] \parallel [CD]$
 $[AD] = [BC]$
 $[CE] \perp [DE]$
 $[EB] = 3$
 $[EF] = 6$
 $[DF] = 9$
 $[AE] = ?$



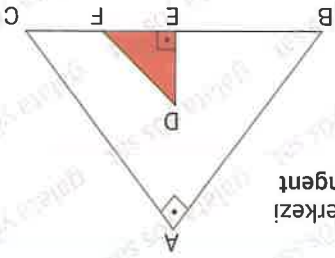
- A) 3 B) 5 C) 6 D) 8 E) 9

18. AOB ve CDE bir eşkenar üçgen
 AOB and CDE an equilateral triangle
 $\frac{A(\widehat{AOB})}{A(\widehat{CDE})} = \frac{4}{9}$
 $E(?, ?)$



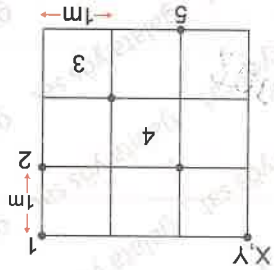
- A) $(12, -8\sqrt{3})$ B) $(4\sqrt{3}, -6)$ C) $(12, -2\sqrt{3})$ D) $(6, -4\sqrt{3})$ E) $(12, \sqrt{3})$

20. ABC bir dik üçgen
 ABC right triangle
 D: içteget gemberinin merkezi
 D; center of the inner tangent circle
 $[AB] \perp [AC]$
 $[DE] \perp [EF]$
 $[DE] = 4$
 $[AB] = 18$
 $[AC] = 20$
 $[FC] = 13$
 $\hat{C}(\widehat{DEF}) = ?$



- A) 10 B) 12 C) 17 D) 24 E) 34

1. ve 2. sorular aşağıda verilen özelliklere göre cevaplandırılacaktır.
The 1st and 2nd questions will be answered according to the features given in the figure.



X, Y araçları bulundukları noktadan başlayarak karenin 1,2,3,4,5 noktalarını dolaşarak başladıkları noktaya geri dönyörlar.

X aracı dakikada 3 metre Y aracı ise 2 metre yol olmaktadır. Buna göre;

The X, Y tools start from the point they are in and go back to the point where they started by going around the 1,2,3,4,5 points of the square.

Vehicle X travels 3 meters per minute and vehicle Y 2 meters per minute.

X aracı önce 5 sonra 4 ve 3 numaralı noktalardan geçip başlangıç noktasına en erken kaç dakikada gelir ?

In how many minutes does vehicle X pass through points 5 and then 4 and 3 and arrive at the starting point at the earliest?

A) 3 B) 4 C) 5 D) 6 E) 7

Y aracı 5aretili beş noktaya uğrayarak başlangıç noktasına en erken kaç dakikada gelir ?

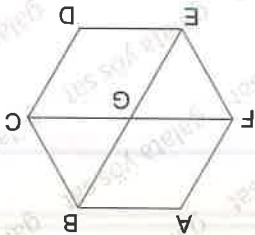
In how many minutes does the Y vehicle stop at the five marked points and arrive at the starting point at the earliest?

A) 2 B) 4 C) 6 D) 8 E) 10

Yukarıdaki şekilde her harf bir şehri göstermektedir. Tüm şehirler arasındaki uzaklık 4 birimdir. Geçilen bir şehirden bir daha geçmemek ve mutlak G şehirden geçmek koşuluyla A şehirden D şehrine en uzun yol kaç birimdir ?

In the above figure, each letter indicates a city. The distance between all cities is 4 units. How many units is the longest journey from A to D, provided that you never pass through a city again and certainly pass through city G?

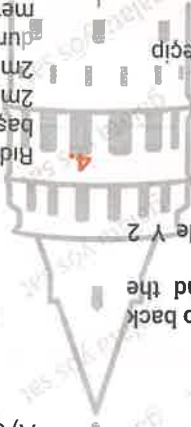
A) 6 B) 12 C) 18 D) 24 E) 30



Rıdvan ve İsaac aynı anda aynı yerden adım atmaya başlıyor. Rıdvan önce 6m kuzeye, sonra 8m doğuya ve 2m güneye giriyor. İsaac ise önce 5m güneye sonra 2m doğuya ve 1m kuzeye giriyor. Buna göre, son duruşunda Rıdvan ile İsaac arasındaki uzaklık kaç metredir ?

Rıdvan and İsaac are starting to step from the same place at the same time. Rıdvan goes 6m north, 8m straight 2m south, 5m south 2m north. In the last case, how many meters is the distance between Rıdvan and İsaac?

A) 7 B) 8 C) 9 D) 10 E) 12



3.

10

Özellik Feature

7.

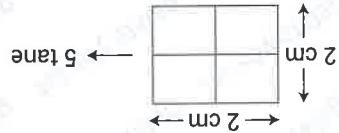
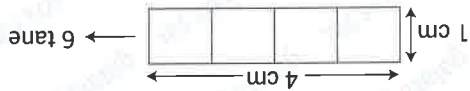
Özellik Feature

5. 6. ve 7. sorular aşağıdaki bilgilere göre cevaplandırılır.

caktır.

Questions 5, 6 and 7 will be answered according to the

information below.



Yukarıda verilen 1x4 ve 2x2 ebatlarındaki karton parçalarıyla belirli şekiller oluşturulacaktır. Bu şekiller oluşturulurken;

• Her tip kartondan en az birer tane kullanılacaktır.

• Şekiller oluşturulurken arada boşluk kalmamalı ve üst

üste gelmemelidir.

• Kartonlar parçalanmayacaktır.

Buna göre;

Various shapes will be created with the above given 1x4 and 2x2 sized cardboard pieces. When creating these shapes:

• At least one of each type of cardboard will be used.

• While creating the figures, there should not be any space between them and they should not overlap.

• Cartons will not crumble.

5. Bu kartonlarla oluşturulacak en küçük alanlı karenin

gevesi kaç cm'dir ?

How many cm is the circumference of the smallest

square rectangle to be created with these cardboards?

- A) 32 B) 28 C) 24 D) 20 E) 16

6. Bu kartonlarla yapılacak en büyük dörtgenin alanı kaç

cm² dir ?

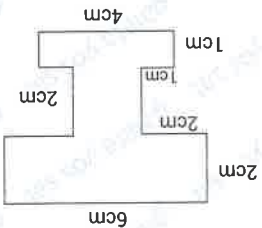
What is the area of the largest rectangle to be made with

these cardboards?

- A) 16 B) 20 C) 40 D) 81 E) 100

Yukarıdaki şekli oluşturabilmek için 1x4 ve 2x2 cm'lik kartonlardan kaç tane kullanılmıştır ?

How many 1x4 and 2x2 cm cardboards were used to create the above shape?



- A) 3 B) 2 C) 2 D) 4 E) 4

- (1x4) (2x2)

8. 9. ve 10. sorular aşağıdaki bilgilere göre cevaplandırılır.

lacaktır.

Questions 8, 9 and 10 will be answered according to the information below.

Şekildeki abaküste 4 basamaklı sayılar gösterilmektedir. Her bir satır bir basamak için kullanılır. Her basamak için üstte 1 tane beyaz boncuk altta ise 5 tane siyah boncuk bulunmaktadır.

Bir rakamın değeri;

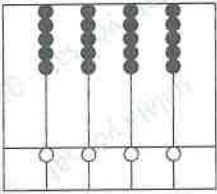
• Beyaz boncuk alta ise yukarıya gelimsi siyah boncuk sayısının 1 eksiğine eşittir.

• Beyaz boncuk üstte ise aşağıda olan siyah boncuk sayısının 4 fazlasına eşittir.

The figure shows 4-digit numbers with the abacus. Each line is used for digits. For each step, there are 1 white bead at the top and 5 black beads at the bottom.

If the white bead is at the bottom, it is equal to 1 minus the number of black beads pulled up.

If the white bead on top is equal to 4 more than the number of black beads below.

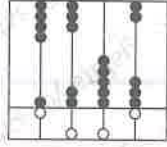


2541 sayısını gösteren abaküste 7051 sayısını göstermek için toplam kaç boncukun yeri değiştirilmelidir ?

How many beads in total should be changed to show the number 7051 in the abacus showing the number 2541?

- A) 4 B) 5 C) 6 D) 7 E) 8

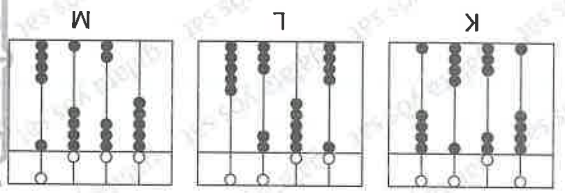
Yukarıdaki abaküs hangi sayıyı göstermektedir ?
What number does the abacus above show?



- A) 2034 B) 2470 C) 3521 D) 4965 E) 6418

8.

K, L ve M abaküslerinin gösterdiği sayıların sıralaması aşağıdakilerden hangisidir ?
Which of the following is the order of the numbers indicated by the K, L, and M abacuses?



- A) $M < L < K$
B) $L < K < M$
C) $K < M < L$
D) $K < L < M$
E) $L < M < K$

11. ve 12. sorular aşağıdaki bilgilere göre cevaplandırılacaktır.

Karelerin içine sayıların yerleştirildiği bir oyunun kuralları şöyledir.

• Kaç tane kare varsa 1'den başlayarak sayılar karelerin içine yazılmalıdır.

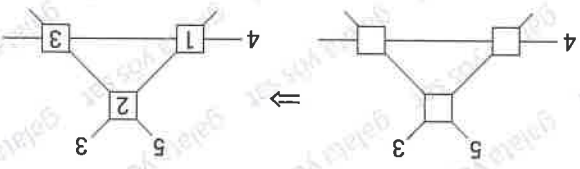
Her karenin içinde sayı olmalıdır.

• Aynı doğru üzerinde bulunan karenin içindeki sayıların toplamı bu doğruun yanına yazılacak sayıya eşittir.

Questions 11 and 12 will be answered according to the information below.

The rules of a game in which numbers are placed in squares are as follows:

- According to the number of squares, starting from 1, the numbers should be written into the squares.
- Each square must have numbers inside.
- The sum of the numbers in the square on the same line is equal to the number to be written next to this line.



3

13.ve14. sorular bu bilgilere göre cevaplandırılacaktır. Alp, Berkay, Ece, Ali ve Ayşe adlı kişilerin herbiri diğ hekimliği, eczacılık, öğretmenlik, avukatlık ve antrenörlük mesleğinden birini yapmaktadır.

13. and 14. questions will be answered according to this information. Alp, Berkay, Ece, Ali and Ayşe each practice one of the professions of dentistry, pharmacy, teacher, lawyer and antresor.

- Alp antrenör veya öğretmendir.
- Alp is a coach or teacher.

- Ece eczacı değildir.
- Ece is not a pharmacist.

- Diğ hekimli olan kadın değildir.
- It is not a woman who is a dentist.

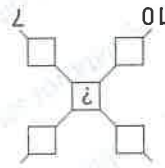
- Öğretmen ve avukat erkektir.
- Teacher and lawyer are men.

13. Bu bilgilere göre Ayşe'nin mesleği nedir ?
According to this information, what is Ayşe's job?

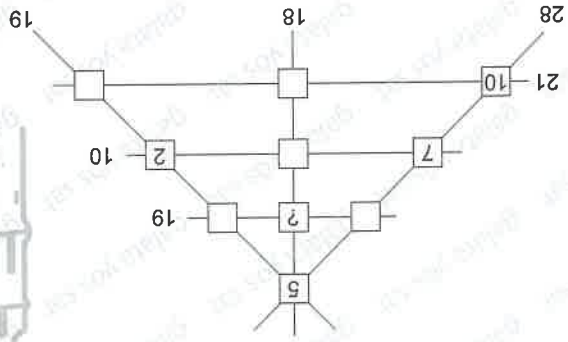
- A) Diğ hekimli / Dentist
- B) Eczacı / Pharmacist
- C) Öğretmen / Teacher
- D) Avukat / Lawyer
- E) Antrenör / Coach

14. Verilen bilgilere göre mesleği kesin belli olmayan iki kişi kimdir ?
Who are the two people whose profession is uncertain according to the information given?

- A) Berkay ve Ali
- B) Berkay ve Alp
- C) Ece ve Ali
- D) Alp ve Ece
- E) Ali ve Alp



- A) 1
- B) 2
- C) 3
- D) 4
- E) 5



- A) 1
- B) 3
- C) 5
- D) 7
- E) 9

15. Bir aile her yıl çocuklarının doğum gününü pasta keserek kutuyorlar. Her yıl çocuk kaç yaşında ise pastaya o kadar mum dikiyorlar. Bu yıla kadar toplam 171 mum diktiklerine göre:
 Bu yıl bu çocuğun kaçınıcı kutuyorlar ?
 Every year a family celebrates their children's birthday by cutting a cake. Every year, the older the child is, the more candles they sew on the cake. According to they planted a total of 171 candles so far this year. What age are they celebrating this child this year?

- A) 18 B) 17 C) 16 D) 15 E) 14

16. 30 ile aynı sütünde bulunan diğer üç sayının toplamı kaçtır ?
 What is the sum of the other three numbers in the same column as 30?

- A) 40 B) 54 C) 60 D) 66 E) 76

17. Her satırdaki sayıların toplamı kaçtır ?
 What is the sum of the numbers in each row?

- A) 54 B) 60 C) 68 D) 70 E) 76

22. 23. ve 24. soruları aşağıdaki bilgilere göre cevaplayınız
 Answer the questions 22, 23 and 24 according to this table.

	14		
		8	
	4		
	18		20

2'den 32'ye kadar olan gift tam sayılar yukarıda verilen kutucuklara aşağıdaki kurallara göre yerleştiriliyor.
 Even integers from 2 to 32 are placed in the boxes given above according to the following rules.

• Her bir kutucukta farklı bir tam sayı olmalıdır.
 Each box must have a different integer.

• Her satırda bulunan sayıların toplamı aynıdır.
 The sum of the numbers in each row is the same.

• Satırdaki sayılar soldan sağa doğru artmaktadır.
 The numbers in the row increase from left to right.

A)

2	6	12
---	---	----

C)

2	6	16
---	---	----

B)

2	6	10
---	---	----

D)

2	6	18
---	---	----

E)

2	6	14
---	---	----

18. 14'ün üstüne hangi sayılar bulunur ?
 What numbers are above 14?



19.

		13
X	14	
	15	

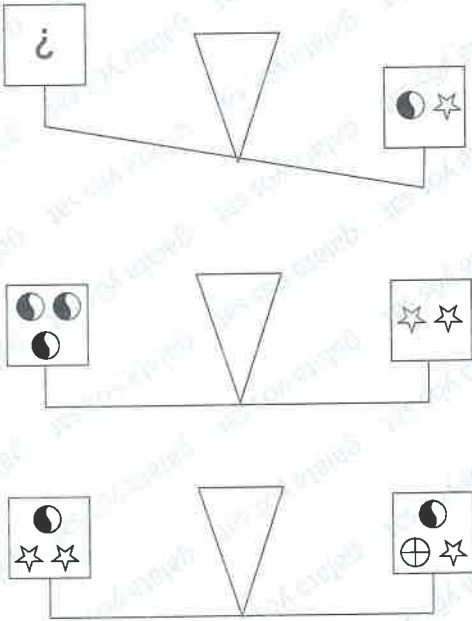
Yukarıdaki şekilde boş kutulara 16,17,18,19,20,21 sayıları yazılacaktır. Bu sayılar kutulara yazılırken satır, sütun ve köşegen toplamları eşit olması gerekmektedir. Buna göre,

X = ?

In the shop above 16,17,18,19,20,21 will be written in the empty boxes. The sums of the numbers in the columns, rows and diagonals must be equal. X=?

- A) 17 B) 18 C) 19 D) 20 E) 21

21.



1. ve 2. terazi dengededir. 3. terazinin sağ kefesi daha ağır gelmektedir. Bu durumda sağ kefede aşağıdakilerden hangisi olmaz ?

1st and 2nd balance are in balance. The third scale weighs heavier on the right pan. In this case, which of the following cannot be on the right pan?

- A) $\oplus \oplus$ B) $\star \star$ C) $\oplus \star$
 D) $\star \star \star$ E) $\oplus \oplus \ominus$

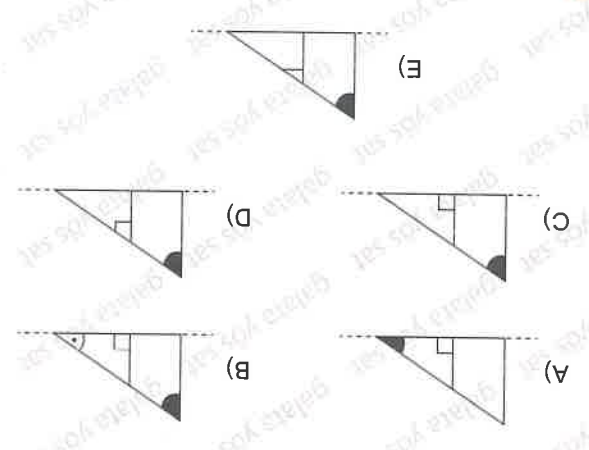
20. Aşağıdaki tabloda 1,2,3,4,5 sayıları her satırda ve sütunda tam birer kez olacak şekilde yerleştirildiğinde "X" yerine hangi sayı gelmelidir ?

In the following table, when the numbers 1,2,3,4,5 are written in each column and row only once, which does the number come instead of "X"?

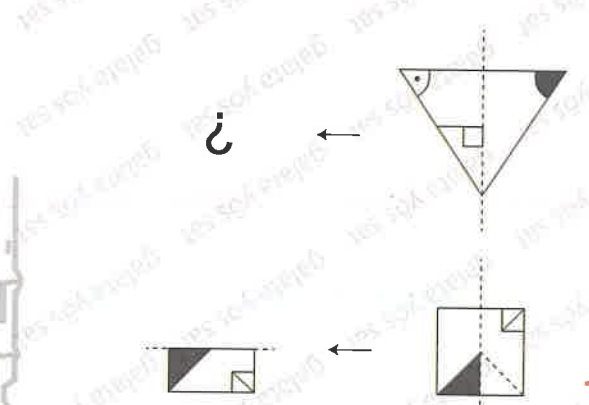
2		4		1
	4	5		
	X			
		3		4
	2			

- A) 1 B) 2 C) 3 D) 4 E) 5

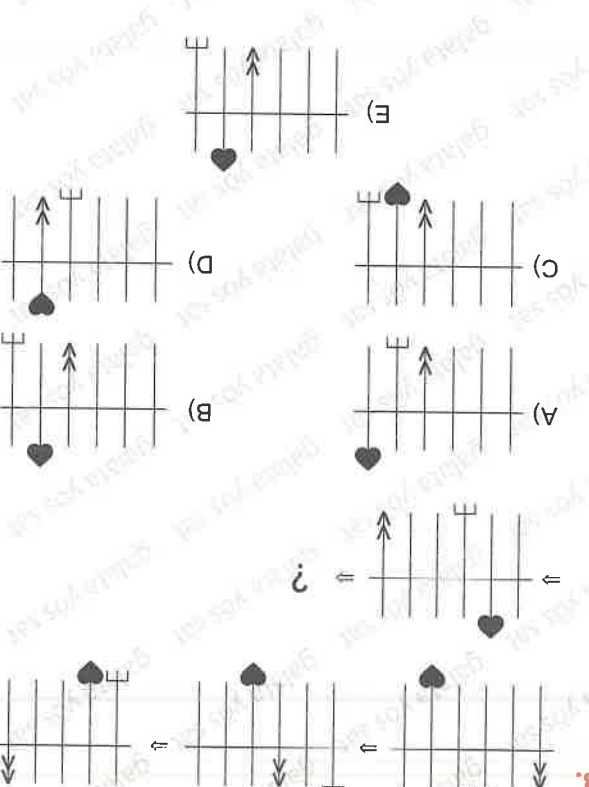
22. 7 15 32 67 138 ?
 A) 274 B) 276 C) 278
 D) 281 E) 282



24.



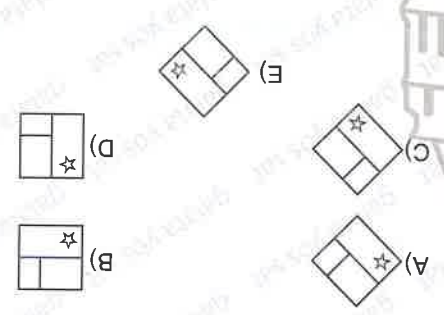
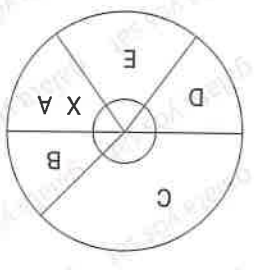
23.



27.

A	21
B	15
C	45
D	25
E	14

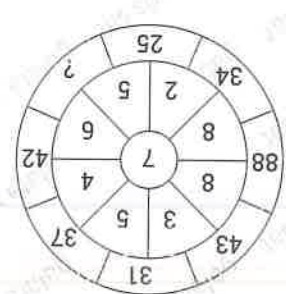
X = ?



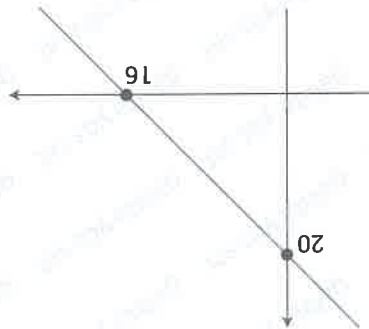
26. Aşağıdakilerden hangisi farklıdır?
Which of the following is different?

- A) 42 B) 48 C) 52 D) 57 E) 63

- A) 35 B) 49 C) 54 D) 63 E) 76



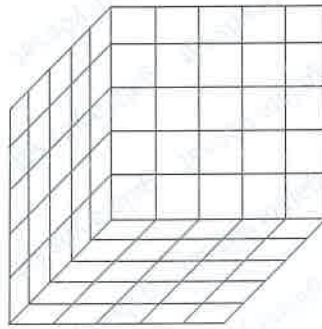
28.



$$x = 84 \Rightarrow y = ?$$

- A) -20 B) -60 C) -80 D) -85 E) -100

29.



Verilen şekilde 125 tane küp yapıştırıcı yardımıyla bir bütün olmuştur. Karşılıklı gelen yüzeylere birer birim yapıştırıcı sürüldüğüne göre toplam kaç birim yapıştırıcı kullanılmıştır ?

125 cubes became a whole with the help of glue. Since one unit of glue is applied to the corresponding surfaces, how many units of glue have been used in total?

- A) 200 B) 250 C) 300 D) 400 E) 450

1.

Aşağıdakilerden hangisi kesinlikle doğrudur?
Which of the following is true?

A) $(p \vee q) \Rightarrow (p \wedge q) \equiv p \Leftrightarrow q$

B) $(p \Rightarrow q) \equiv p' \Leftrightarrow q'$

C) $(p \Leftrightarrow q) \equiv p \Leftrightarrow q'$

D) $p \Leftrightarrow 0 \equiv p$

E) $(p \Rightarrow p) \equiv p$

2.

$[(\exists x \in \mathbb{R}, x^2 \geq 0) \wedge (\forall x \in \mathbb{R}, x^2 < x)] \equiv ?$

A) $(\forall x \in \mathbb{R}, x^2 < 0) \vee (\exists x \in \mathbb{R}, x^2 \geq x)$

B) $(\forall x \in \mathbb{R}, x^2 < 0) \vee (\forall x \in \mathbb{R}, x^2 < x)$

C) $(\exists x \in \mathbb{R}, x^2 < 0) \vee (\forall x \in \mathbb{R}, x^2 \geq x)$

D) $(\exists x \in \mathbb{R}, x^2 < 0) \vee (\forall x \in \mathbb{R}, x^2 < x)$

E) $(\forall x \in \mathbb{R}, x^2 \leq x) \vee (\exists x \in \mathbb{R}, x^2 > x)$

- A) 27 B) 81 C) 108 D) 54 E) 27

30.
$$p \neq q = \begin{cases} p^2 + q^2, & p < q \\ pq + 3, & p > q \end{cases} \Rightarrow (-3) \times (3 \times 2) = ?$$

3. $p: 3^2 + 4^2 = 5^2$

$q: 8,8 < 8,8$

$r: \sqrt{1 + \frac{16}{1}} = 1 + \frac{4}{1}$

p, q, r önermelerinin doğruluk değerleri sırasıyla aşağıdakilerden hangisidir?

Which of the following are the truth values of the p, q, r propositions, respectively?

A) 1, 0, 0 B) 1, 1, 0 C) 0, 1, 1

D) 0, 1, 0 E) 1, 1, 1

4. $(p \Rightarrow q) \wedge (q \Rightarrow 1) = ?$

A) 0 B) 1 C) p D) p' E) p' v q

5. $x = -3$ ise $5x - 1 < 0$ önermesinin karıştı tersi hangisidir?

$x = -3$, Which is the contraposition of the proposition

A) $5x - 1 < 0$ ise $x \neq -3$ B) $5x - 1 \geq 0$ ise $x \neq -3$

C) $5x - 1 \geq 0$ ise $x = -3$ D) $x \neq -3$ ise $5x - 1 \geq 0$

E) $x = -3$ ise $5x - 1 < 0$

6. $(p \wedge \bar{p}) \Leftrightarrow (p' \vee p) = ?$

A) 0 B) 1 C) p D) p' E) $p \Rightarrow p$

10. Aşağıdakilerden hangisi yanlıştır?

Which of the following is false?

A) $p \vee q = p$ B) $q \vee p \equiv p \vee q$

C) $(p \vee q) \vee r \equiv p \vee (q \vee r)$ D) $p \vee p' \equiv 1$

E) $p \vee 0 \equiv p$

9. 66 kişilik bir grupta, 38 tane erkek vardır. Kız veya gözlüklü öğrencilerin sayısı 49'dur. Buna göre, gözlüksüz erkeklerin sayısı kaçtır?

There are 38 men in a group of 66 people. The number of girls or students with glasses is 49. So what is the number of men without glasses?

A) 31 B) 21 C) 23 D) 28 E) 17

8. $p: 2^3 < 3^2$

q: 17 asal sayıdır / prime number

s: $3 > 5$

r: $\sqrt{3}$ rasyonel bir sayıdır. / rational number.

Buna göre hangisi doğrudur?

Accordingly, which one is true?

A) $p \equiv q$ B) $p \equiv s$ C) $r \equiv p$ D) $q \equiv s$ E) $q \equiv r$

7. $p' \vee (p \wedge q) = ?$

A) $p \vee q$

B) $p \vee q'$

C) $p' \vee q$

D) $p \wedge q$

E) $p' \wedge q$

11. $(p \vee p) \vee (p \vee p) \equiv ?$

- A) p B) p' C) 1 D) 0 E) p v p'

12. $(p \Rightarrow p) \Rightarrow (q \Rightarrow p) \equiv ?$

- A) p B) p' C) 1 D) q E) q

13. $x^2 - 8i \cdot x + 9i = 0$

denkleminin kökleri x_1 ve x_2 dir.

$\Rightarrow \frac{1}{1+x_1} + \frac{1}{1+x_2} = ?$

- A) 9 B) 8 C) 1 D) $\frac{8}{1}$ E) $\frac{9}{1}$

14. a, b, c $\in \mathbb{R}^+$

$\sqrt{a-\sqrt{3c}} = 2, \sqrt{4a+\sqrt{b-\sqrt{12c}}} = 6$

$\Rightarrow b = ?$

- A) 1 B) 4 C) 9 D) 16 E) 36

15. $\frac{\sin x - 2 \cos x}{3 \sin x + 4 \cos x} = \frac{3}{2} \Rightarrow \tan x = ?$

- A) $\frac{3}{2}$ B) $\frac{3}{3}$ C) $\frac{14}{9}$ D) $-\frac{9}{14}$ E) $-\frac{3}{14}$

16. $f(x) = (x^2 - 4) \cdot g^2(x)$ veriliyor $g(2) = 3 \Rightarrow f'(2) = ?$

- A) 18 B) 24 C) 36 D) 40 E) 48

17. A, B $\in \mathbb{R}$

$\int_2^4 \frac{dx}{x^2+3x+2} = A, \int_2^4 \frac{dx}{x+1} = B$

$\int_2^4 \frac{dx}{x+2} = ?$

- A) B-A B) A+B C) A-B D) $B-\frac{A}{2}$ E) 2B-A

18. $\begin{cases} 2x+y=3 \\ 2x^2+y^2=27 \end{cases} (x,y) = ?$

- A) $\{(1,-1), (3,-3)\}$ B) $\{(3,-3), (-1,5)\}$ C) $\{(-1,2), (-3,3)\}$ D) $\{(-2,2), (4,-4)\}$ E) $\{(1,2)\}$

19. $a, b, c \in \mathbb{Z}^+$

$(4a)^6 \cdot (5b)^8 = (10c)^{14}$

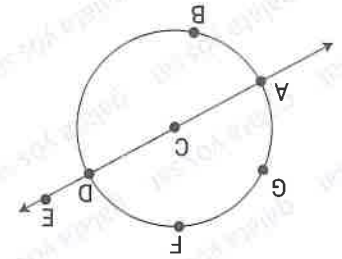
$\Rightarrow \min(a+b+c) = ?$

- A) 9 B) 10 C) 11 D) 12 E) 13

20. $\left(\sqrt{x} + \frac{\sqrt[3]{x}}{1}\right)^8 = \dots + A \cdot \frac{x}{1} + \dots$

$\Rightarrow A = ?$

- A) 28 B) 21 C) 15 D) 12 E) 6



21.

Şekilde verilen A, B, C, D, E, F, G noktalarından rastgele seçilen üç noktanın bir üçgen oluşturma olasılığı kaçtır?

What is the probability that the three points chosen at random from the points A, B, C, D, E, F, G given in the figure form a triangle?

- A) $\frac{4}{35}$ B) $\frac{13}{35}$ C) $\frac{27}{35}$ D) $\frac{35}{29}$ E) $\frac{31}{35}$

22. $z = 1 + 2i$, karmaşık sayısının esas argumenti α olduğuna göre $\sec \alpha + \operatorname{cosec} \alpha = ?$
 $z = 1 + 2i$, since the main argument of the complex number is α , $\sec \alpha + \operatorname{cosec} \alpha = ?$

- A) $\frac{\sqrt{2}}{2}$ B) $\sqrt{5}$ C) $3\sqrt{5}$ D) $2\sqrt{5}$ E) 5

24. $(Q_n) = (n^2 - 14n - 2)$

dizisinin en küçük terimi kaçtır?

What is the smallest term of the sequence?

- A) -63 B) -51 C) -27 D) 12 E) 0

25. (Q_n) dizisi için / sequence

$Q_n = Q_{n+3} + 4$ ve $Q_2 = 1$

$\Rightarrow Q_8 = ?$

- A) -3 B) -5 C) -6 D) -7 E) -9

26. İlk n teriminin toplamı $S_n = n^2 + 4n$ alan bir (Q_n) aritmetik dizisinde $Q_4 + Q_5 + Q_6 = ?$

In an arithmetic sequence (Q_n) where the sum of the first n -terms is $S_n = n^2 + 4n$, $Q_4 + Q_5 + Q_6 = ?$

- A) 36 B) 37 C) 38 D) 40 E) 39

23. $x = \frac{\ln 3 + \ln 4}{2 \ln 3} \Rightarrow 3^x = ?$

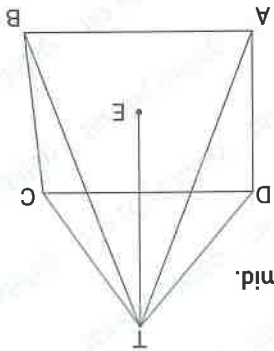
1. (T, ABCD) kare piramittir.

(T, ABCD) is a square pyramid.

$$A(ABCD) = 36$$

$$|ET| = 3\sqrt{3}$$

$$V = ?$$



A) $36\sqrt{3}$ B) $72\sqrt{3}$ C) $100\sqrt{3}$

D) $102\sqrt{3}$ E) $108\sqrt{3}$

27. İlk n terim toplamı $S_n = 3^n - 1$ olan bir geometrik

dizinin ortak çarpanı kaçtır ?

What is the common factor of a geometric sequence whose first n-term sum is $S_n = 3^n - 1$?

A) $\sqrt[3]{3}$ B) $\frac{2}{3}\sqrt{3}$ C) $\sqrt{3}$ D) 3 E) $\frac{1}{3}$

28. $A = \begin{bmatrix} \log_3 8 & \log_6 e \\ \ln 125 & \log_2 81 \end{bmatrix} \Rightarrow \det A = ?$

A) 9 B) 12 C) 15 D) 16 E) 21

2.

Şekilde bir ayrıtı 12 olan

küpüte

In the figure, a cube with

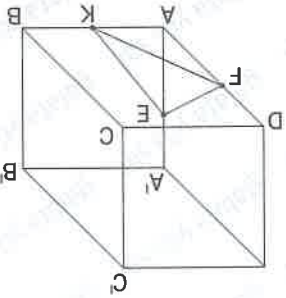
edge of 12.

$$|AF| = 2 |DF|$$

$$|AK| = 2 |KB|$$

$$|AE| = 3 |EA'|$$

$$V(E, A'FK) = ?$$



A) 40 B) 48 C) 96 D) 98 E) 104

3.

$V = 36\sqrt{5}$ olan şekildedeki kare

piramidin taban çevresi 24

olduğuna göre yanıl alanı

nedir ?

Since the base circumference

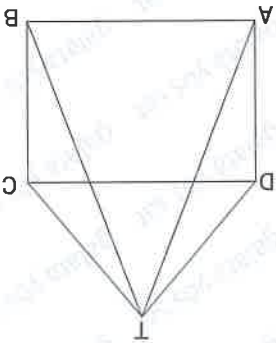
of the square pyramid with

$V=36\sqrt{5}$ is 24, what is its lateral

area?

A) $18\sqrt{6}$ B) $20\sqrt{6}$ C) $24\sqrt{6}$

D) $36\sqrt{5}$ E) $36\sqrt{6}$



30. $f(x) = x^3 - 3x^2 + 6x + 2$

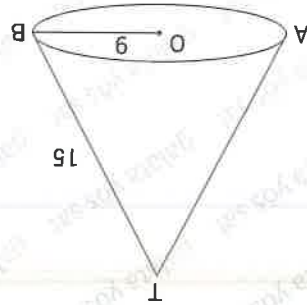
fonsiyonun $x=2$ noktasında çizilen teğetin eğilimi

kaçtır ?

What is the slope of the tangent of the function drawn at the point $x = 2$?

A) -6 B) 6 C) 7 D) 7 E) -8

4. (T, AB) konisinde / cone

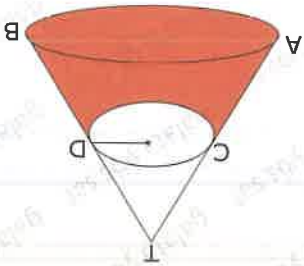


$|OB| = 9$
 $|TB| = 15$
 $V = ?$
 Yanal Alan = ?
 Lateral Area = ?

- A) $V = 130\pi$
 $YA = 300\pi$
 C) $V = 300\pi$
 $YA = 100\pi$
 B) $V = 324\pi$
 $YA = 135\pi$
 D) $V = 324\pi$
 $YA = 108\pi$
 E) $V = 328\pi$
 $YA = 135\pi$

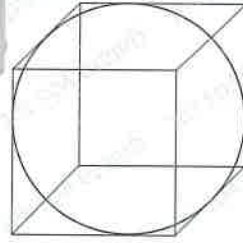
7.

$|TC| = 3|AC|$
 $V(T, CD) = 27\text{cm}^3$
 olan (T, AB) konisinde
 Taralı parçanın hacmi
 nedir ?
 Shaded piece volume
 in the (T, AB) cone = ?



- A) 27
 B) 30
 C) 37
 D) 54
 E) 74

5. Yüzey alanı 72 olan
 küpün içine yerleştirile-
 cek en büyük yarım küre
 kürenin hacmi nedir ?
 What is the volume of the
 max radius sphere to be
 placed in the cube of
 surface area 72?



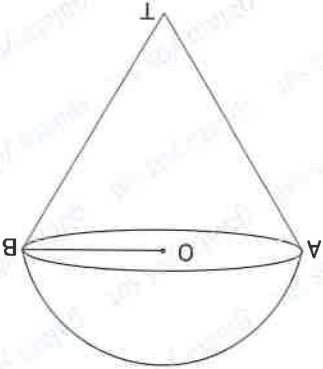
- A) $4\sqrt{3}\pi$
 B) $6\sqrt{3}\pi$
 C) $8\sqrt{3}\pi$
 D) $12\sqrt{3}\pi$
 E) $24\sqrt{3}\pi$

8.

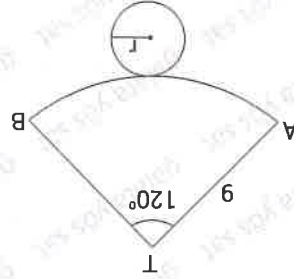
O: merkezi yarım küre
 ile [AB] gapti koni
 birleştirilmiştir
 O: centered hemisphere
 combined with [AB]
 diameter cone.
 $|TO| = 4|OB|$
 $\frac{V \text{ küre} / V \text{ sphere}}{V \text{ koni} / V \text{ cone}} = ?$



- A) $\frac{1}{2}$
 B) $\frac{3}{1}$
 C) $\frac{4}{1}$
 D) $\frac{5}{1}$
 E) $\frac{6}{1}$



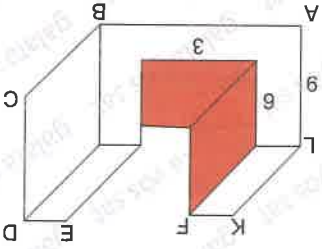
6. Ağilimi verilen konin
 alanı nedir ?
 What is the area of the
 cone?



- A) 27π
 B) 30π
 C) 32π
 D) 36π
 E) 48π

9.

Şekilde bir ayriti 9 birim
 olan küpten ayrıttarı
 3,6,9 birim olan dikdört-
 gen prizma çıkartılıyor.
 Oluşan cismin yüzey
 alanı kaç birim karedir?
 In the figure, a rectangular
 prism whose edges
 are 3,6,9 units is extrac-
 ted from a cube with 9
 units on one side. How
 many unit square is the
 surface area of the
 object formed?



- A) 508
 B) 528
 C) 558
 D) 568
 E) 600

10. ABCDE düzğün beşgen

ABCD regular pentagon

$|AD| = b$

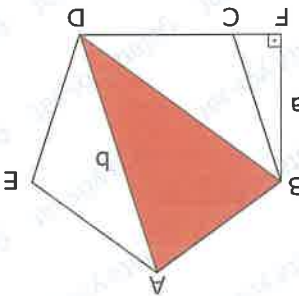
$|BF| = a$

A(ABD) 'nin a ve b

cininden değeri ?

What is A(ABD) in

terms of a and b?



- A) a + b B) a - b C) $\frac{a \cdot b}{2}$ D) a · b E) 2ab

11. $(x+4)^2 + (y-5)^2 = 36$ olan çemberin $2x - 5y + 4 = 0$

doğrusu üzerindeki kirişin uzunluğu nedir ?

What is the length of the beam on the line $2x + 5y - 4 = 0$

of the circle with $(x+4)^2 + (y-5)^2 = 36$

- A) $2\sqrt{5}$ B) $2\sqrt{7}$ C) $4\sqrt{7}$ D) $5\sqrt{7}$ E) $6\sqrt{7}$

14. O: merkezli tam çemberde
 $|AC| = |DE|$
 $|OC| = 13$
 $|BO| = 5$
 $|DE| = x = ?$



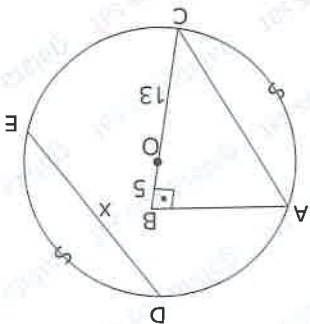
- A) $4\sqrt{13}$

- D) $7\sqrt{13}$

- B) $5\sqrt{13}$

- E) $8\sqrt{13}$

- C) $6\sqrt{13}$



12. O: merkezli yarım çemberde

$|OC| = 12\sqrt{3}$

$m(\widehat{OBC}) = 120^\circ$

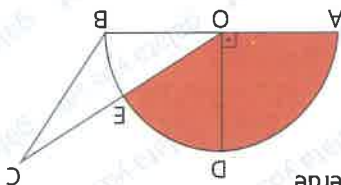
$[OD] \perp [AB]$

$|OD| = |BC|$

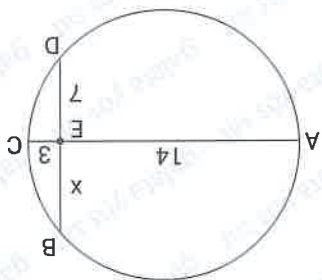
Taralı alan = ?

Shaded area = ?

- A) 27π B) 30π C) 32π D) 60π E) 108π



15. $|EC| = 3$
 $|AE| = 14$
 $|ED| = 7$
 $|BE| = ?$



- A) 6 B) 7 C) 8 D) 9 E) 14

13. ABCD bir dikdörtgen

ABCD rectangular

A: çeyrek dairenin

merkezi

A: center of the quarter

circle

E: yarım dairenin merkezi

E: center of the semicircle

K ve L teğet noktalar

K and L: tangent points

$|LM| = 2$

$TA = ?$

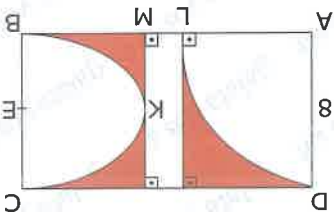
A) $48 - 12\pi$

B) $60 - 12\pi$

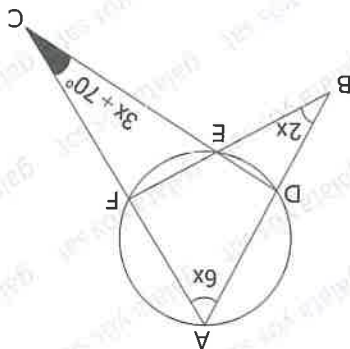
C) $96 - 24\pi$

D) $112 - 24\pi$

E) $100 - 12\pi$

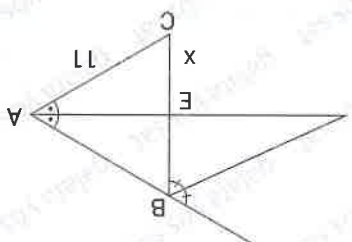


15. A) 50 B) 60 C) 70 D) 80 E) 100



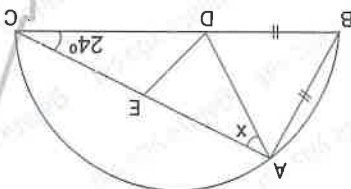
18. $m(\widehat{BAF}) = 6x$
 $m(\widehat{ABF}) = 2x$
 $m(\widehat{ACD}) = 3x + 70^\circ$
 $m(\widehat{ACD}) = ?$

- A) 5 B) 6 C) 7 D) 10 E) 11



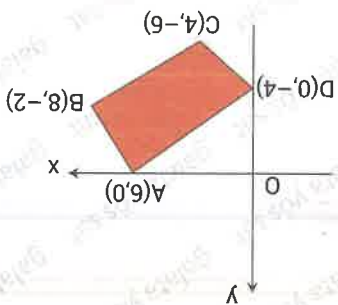
20. [BD]: dış açıortay,
 [AD]: iç açıortay,
 [AD]: interior bisector, D
 $\frac{|DE|}{|EA|} = \frac{5}{6}$
 $|AC| = 11$
 $|EC| = x = ?$

- A) 33 B) 50 C) 52 D) 57 E) 60



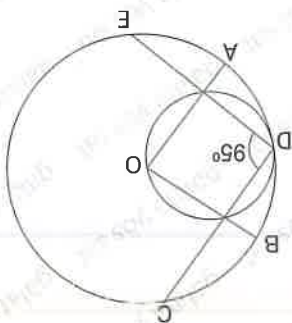
17. BC: çaplı yarım
 çemberde
 BC; diameter of
 the semicircle
 $|AB| = |BD|$
 $m(\widehat{ACB}) = 24^\circ$
 $x = ?$

- A) 18 B) 20 C) 22 D) 24 E) 28



19. $A(ABCD) = ?$

- A) 80 B) 82 C) 85 D) 90 E) 95



16. O: büyük çemberin merkezi
 $m(\widehat{CDE}) = 95^\circ$
 $m(\widehat{BC}) + m(\widehat{AE}) = ?$

Başarıya Götüren



KTS-30

Mat	Problem / Problem	Mat	Matrik / Logic	Geo	Kati Cisimler / Rigid Bodies
IQ	Problem / Problem	IQ	Problem / Problem	IQ	Sudoku
Geo	Vektörler / Vectors	Geo	Kati Cisimler / Rigid Bodies	Geo	Kati Cisimler / Rigid Bodies

Mat	Integral / Integral	Mat	Matris ve Determinant	Geo	Çemberin Analizi / Circle Analysis
IQ	3 Boyutlu Cisim / 3D Object	IQ	Saatler - Üçgen Sayma	IQ	Saatler - Üçgen Sayma
Geo	Doğru Analizi / Right Analytics	Geo	Çemberin Analizi / Circle Analysis	Geo	Çemberin Analizi / Circle Analysis

Mat	Integral / Integral	Mat	Türev / Derivative	Geo	Çemberin Uzunluk / Circle Length
IQ	Şekli Karşılaştırma	IQ	Farklı Çiçim Bulma	IQ	Şekli İlgili Sorular
Geo	Analitik Geometri / Analytical geometry	Geo	Çemberin Uzunluk / Circle Length	Geo	Çemberin Uzunluk / Circle Length

Mat	Logaritma Türmeleme	Mat	Özel Tanımlı Fonksiyonlar	Geo	Çemberin Açı / Angle on Circle
IQ	Şekli İlgili Tablo	IQ	Şekli İlgili Tablo	IQ	Şekli İlgili Sorular
Geo	Dikdörtgen / Rectangular	Geo	Kare / Square	Geo	Çemberin Açı / Angle on Circle

Mat	Karmaşık Sayılar / Complex numbers	Mat	Trigonometri / Trigonometry	Geo	Çevre Alan / Environment - Area
IQ	Şekli İlgili Sorular	IQ	KLM	IQ	Çevre Alan / Environment - Area
Geo	Yamuk / Trapezoid	Geo	Eğkenar Dörtgen / Rhombus	Geo	Paralelkenar II. / Parallel Edge II

Mat	Modüler Aritmetik	Mat	Polinom / Polynomial	Geo	Paralelkenar I. / Parallelogram I
IQ	Küp Sayma Tamamlayıcı	IQ	Geometrik / Graphics	IQ	Geometrik / Graphics
Geo	Küp Sayma / Polygons	Geo	Dörtgen / Quadrilateral	Geo	Paralelkenar I. / Parallelogram I

Mat	İçim / Operation	Mat	Karşılıklı Çarpım ve Fonksiyonlar	Geo	Üçgenin Alan / Area of Triangles
IQ	Denklemler Eşitlik / Equation Matching	IQ	Eşleştirme / Matching	IQ	Oranlar / Scales
Geo	Üçgenin Alan / Area of Triangles	Geo	Üçgenin Alan / Area of Triangles	Geo	Üçgenin Alan / Area of Triangles

Mat	Doğal Sayılar / Natural numbers	Mat	Sayılar / Numbers	Mat	Oran Orantı / Ratio and Proportion
IQ	Sayı Bağımlı / Number Relations	IQ	Tablolar / Tables	IQ	Tablolar / Tables
Geo	Kenarortay / Median	Geo	Üçgenin Benzerlik	Geo	Üçgenin Benzerlik

Mat	Basit Eşitsizlik ve Mutlak Değer	Mat	Çarpma Ayrma / Factorization	Mat	Radikal Sayılar / Radical Expressions
IQ	Basit Eşitsizlik ve Mutlak Değer	IQ	Çarpma Ayrma / Factorization	IQ	Radikal Sayılar / Radical Expressions
Geo	Açıortay / Bisector	Geo	İkizkenar ve Eşkenar Üçgen	Geo	İkizkenar ve Eşkenar Üçgen

Mat	İçim Üçgen ve Rasyonel Sayılar	Mat	Birinci Dereceden Denklemler	Mat	Üçgenin Alan / Area of Triangles
IQ	Sözcük / Passwords	IQ	Sayı Örüntüleri / Number patterns	IQ	Sayı Örüntüleri / Number patterns
Geo	Açılar / Angles	Geo	Üçgenin Alan / Area of Triangles	Geo	Üçgenin Alan / Area of Triangles

1. Bir mühendis ile kızı, avukat ile eşi yürüyüşe gikiyorlar yolda yürürken 3 soda aliyorlar ve her biri bir soda içiyor.

Buna göre:

I. Mühendis avukatın eşidir.

II. Avukatın hanımı mühendisin kendisidir.

III. Avukat mühendisin damadidir.

Hangileri doğrudur ?

An engineer and his daughter, a lawyer and his wife go for

a walk, take 3 sodas while walking on the street, and each

one drinks a soda.

According to this:

I. Engineer is the wife of the lawyer.

II. The lawyer's wife is the engineer himself

III. The lawyer is the son-in-law of the engineer.

Which ones are true?

A) I.

B) II.

C) III.

D) I-II

E) I-II-III

2.

2020 yılında bu mağazada 1400 tablet satıldığına göre aynı yıl kaç bulaşık makinesi satılmıştır ?

Since 1400 tablets were sold in this store in 2020, how

many dishwashers were sold in the same year?

A) 500 B) 560 C) 600 D) 640 E) 700

2020 yılında televizyon satışı buzdolabı satışından 164 fazla ise aynı yıl kaç tane gamasır makinesi satılmıştır ?

If the sales of televisions are 164 higher than the sales of

refrigerators in 2020, how many washing machines were

sold?

A) 760 B) 780 C) 800 D) 820 E) 840

3.

2 ve 3.sorular aşağıdaki tabloya göre cevaplandırılacaktır.

Questions 2 and 3 will be answered according to the table

below.



Bir mağazanın 2020 yılındaki elektronik esya satışının oransal dağılımı dairisel grafikte gösterilmektedir.

The proportional distribution of a store's sales of electronics in 2020 is shown in a circular chart.

4. ve 5. sorular aşağıdaki bilgilere göre cevaplandırılacaktır. The 4th and 5th questions will be answered according to the following information.

Bahışta, Farışta, Farshed, Nazila ve Müslüma'nın saatlerinin doğru zamana göre durumu şöyledir.

The clocks of Bahışta, Farışta, Farshed, Nazila and

Muslim according to the correct time are as follows:

- Bahışta: 5 dakika geri / Bahışta: 5 minutes back
- Farışta: 10 dakika ileri / Farışta: 10 minutes ahead
- Farshed: 8 dakika geri / Farshed: 8 minutes back
- Nazila: 7 dakika ileri / Nazila: 7 minutes ahead
- Müslüma: 4 dakika geri / Müslüma: 4 minutes behind

7. 8. ve 9. sorular aşağıdaki bilgilere göre cevaplandırılacaktır.

Questions 7, 8 and 9 will be answered according to the information below.

Bir şifre sisteminde yer alan bazı şekiller aşağıda verilmiştir.

Some shapes are used in a password system as given below



Şifresi gözülmemiş şekillerle ilgili şunlar bilinmektedir.

The following are known regarding the decrypted shapes.

● Her şekil E,B,D,R,N,V,I,Ü harflerinden birini göstermektedir. Each figure shows one of the letters E, B, D, R, N, V, I, Ü.

● ve ● şekilleri R ve Ü harflerini göstermektedir.

The figures show the letters R and Ü.

● ve ● şekillerinin ikisi N ve B harflerini göstermektedir. / The figures show the letters N and B.

● ve ● şekli V harfini göstermektedir./shows the letter V.

4. Müslimannın saat 21:21 gösterdiğinde Farishta'nın saati kaç gösterir?

When the clock of Müslima shows 21:21, what time does Farishta's clock show?

A) 21:11 B) 21:17 C) 21:25 D) 21:31 E) 21:35

5. Nazilia'nın saatine göre 21:57 de başlayan bir film, Farshed'in saatine göre 23:56 da bitmiştir. Buna göre; Bu film kaç dakika sürmüştür?

A movie that started at 21:57 by Nazilia's time ended at 23:56 by Farshed's clock. How many minutes did this movie take?

A) 121 B) 129 C) 134 D) 140 E) 147

6. 31 kişilik bir sınıfta kız öğrencilerin sayısı erkek öğrencilerin sayısının 3 katından 1 eksiktir. Buna göre; Bu sınıftaki kız öğrenci sayısı kaçtır?

In a class of 31 students, the number of female students is 1 less than 3 times the number of male students. What is the number of female students in this class?

A) 23 B) 21 C) 19 D) 17 E) 15

7. Şeklinin bir ünsüz harfi gösterdiği var sayıldığında,



bu şekil aşağıdaki harflerden hangisini gösterir ?

- Assuming that the shape represents a consonant, which of the following letters does that figure represent?

- A) B B) V C) D D) R E) N

8. Şifrenin tam olarak gözülmediği göz önünde bulundurularak aşağıdaki şekillerden hangisinin gösterdiği harf sayısı olasılığı en fazladır ?

Considering that the password is not fully decoded, which of the figures below shows the most probability of the number of letters?

- A) B) C) D) E)

9. Yukarıdaki şifresi verilen yazı aşağıdakilerden hangisi olabilir ?

Which of the following could be the text with the password given above?

- A) RNUV B) RNÜVB C) RVÜNU D) RÜNVÜ E) ÜRVBR



10. 11. ve 12. sorular aşağıdaki bilgilere göre cevaplandırılacaktır.
Questions 10, 11 and 12 will be answered according to the information below.

Yukarıdaki tablo Miladi takvime göre, artik yıl (Şubat ayının 29 olduğu yıl) olan A yılının Mart ayını göstermektedir.

The table above shows the month of March of year A, which is the leap year (the year February is 29) in the Gregorian calendar.

Pazartesi / Monday	Sali / Tuesday	Çarşamba / Wednesday	Perşembe / Thursday	Cuma / Friday	Cumartesi / Saturday	Pazar / Sunday
4	5	6	7	8	9	3
11	12	13	14	15	16	10
18	19	20	21	22	23	17
25	26	27	28	29	30	24
						31

10. A yılının 9 Haziranı haftanın hangi gününe denk gelmektedir ?

- A) Çarşamba / Wednesday B) Perşembe / Thursday C) Cuma / Friday D) Cumartesi / Saturday E) Pazar / Sunday

11. A yılının Temmuz ayının ilk Cuma günü ayın kaçırday of July of year A? What day of the month is on the first Friday of July of year A?

- A) 2 B) 3 C) 4 D) 5 E) 6

12. Aşağıdakilerden hangisi A yılının Ocak ayını göstermektedir ?
Which of the following represents January of year A?

Pazartesi / Monday	1	8	15	22	29
Salı / Tuesday	2	9	16	23	30
Çarşamba / Wednesday	3	10	17	24	31
Perşembe / Thursday	4	11	18	25	
Cuma / Friday	5	12	19	26	
Cumartesi / Saturday	6	13	20	27	
Pazar / Sunday	7	14	21	28	

A)

Pazartesi / Monday	5	12	19	26	
Salı / Tuesday	6	13	20	27	
Çarşamba / Wednesday	7	14	21	28	
Perşembe / Thursday	1	8	15	22	29
Cuma / Friday	2	9	16	23	30
Cumartesi / Saturday	3	10	17	24	31
Pazar / Sunday	4	11	18	25	

B)

Pazartesi / Monday	4	11	18	25	
Salı / Tuesday	5	12	19	26	
Çarşamba / Wednesday	6	13	20	27	
Perşembe / Thursday	7	14	21	28	
Cuma / Friday	1	8	15	22	29
Cumartesi / Saturday	2	9	16	23	30
Pazar / Sunday	3	10	17	24	31

C)

Pazartesi / Monday	6	13	20	27	
Salı / Tuesday	7	14	21	28	
Çarşamba / Wednesday	1	8	15	22	29
Perşembe / Thursday	2	9	16	23	30
Cuma / Friday	3	10	17	24	31
Cumartesi / Saturday	4	11	18	25	
Pazar / Sunday	5	12	19	26	

D)

Pazartesi / Monday	7	14	21	28	
Salı / Tuesday	1	8	15	22	29
Çarşamba / Wednesday	2	9	16	23	30
Perşembe / Thursday	3	10	17	24	31
Cuma / Friday	4	11	18	25	
Cumartesi / Saturday	5	12	19	26	
Pazar / Sunday	6	13	20	27	

E)

13. Galata YÖS deneme kitabının sayfaları birden başlayarak 1,2,3,4... şeklinde numaralandırılmıştır. Buna göre; Galata YÖS deneme kitabı kaç sayfadır ?
The pages of the Galata YÖS trial book are numbered 1,2,3,4... starting from one. A total of 594 numbers were used in the numbering process.
How many pages is the Galata YÖS trial book?

- A) 225 B) 231 C) 234 D) 238 E) 241

14. 9'dan 1'e kadar olan sayılar, sayısal değerleri kadar yanyana konularak bir A sayısı oluşturulmuştur. An A number was created by putting the numbers from 9 to 1 side by side as much as their numerical values. A = 99999999998888 ... 4444333221
olduğuna göre, A sayısının baştan 36.rakamı kaçtır ?
so what is the 36th digit of the number A from the beginning?

- A) 7 B) 6 C) 5 D) 4 E) 3

15. Bir bilet kuyruğunda Azra baştan 16.sırada, Gizem ise sondan 22.sıradadır. Azra ile Gizem arasında 9 kişi olduğuna göre kuyrukta toplam en az kaç kişi vardır ?
In a ticket queue, Azra is 16th from the beginning and Gizem is 22nd from the end. Since there are 9 people between Azra and Gizem, how many people are in the queue at least?

- A) 26 B) 27 C) 28 D) 29 E) 30

16. Boş sorudan oluşan bir ankette her soruya A, B, C, D, ve E yanıtlarından birinin verilmesi gerekmektedir. Aşağıdaki tabloda Hasan, Seher, Hüseyin, Atike ve Ahmet'in bu anketteki sorulara verdiği yanıtların bazılarını gösterilmiş tir.

	1. soru	2. soru	3. soru	4. soru	5. soru
Hasan	C	B			
Seher		D	C		
Atike			D		
Hüseyin					
Ahmet		A	B	C	

Tablo, bu kişilerin verdikleri diğer yanıtlarla tümüyle doldurulduğunda hiçbir satır ve hiçbir sütunda harr tekrarı bulunmadığına göre, Hüseyin 2. soruya hangi yanıtı vermiştir?

When the table is completely filled with the other answers given by these people, what answer does Hüseyin give to the second question?

- A) A B) B C) C D) D E) E

17. Aşağıdaki aritmetik diziyeye göre $P_{11} = ?$ calculate $P_{11} = ?$ According to the following arithmetic sequence,

P_1					
P_{15}

- A) 46 B) 48 C) 50 D) 55 E) 62

19.



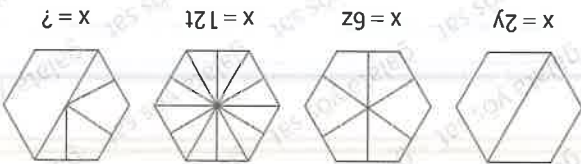
A) 1

- B) 2 C) 4 D) 5 E) 6

$$x = ?$$

+	x	x	y	z
x				
y	z^2			$4x$
z				8

- A) $y + 3z + t$ B) $y + 4z$ C) $2y + 2z + 2t$ D) $y + z + t$ E) $2z + 2t + y$



$$x = 2y$$

$$x = 6z$$

$$x = 12t$$

$$x = ?$$

- A) A 4 B) E 64 C) U 92 D) I 86 E) O 104

20. Aşağıdakilerden hangisi diğerlerinden farklıdır? Which of the following is different from the others?

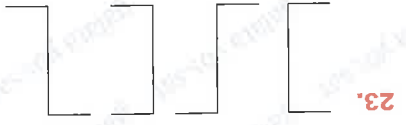
21.

13:29	14:03	14:38	15:14	?
-------	-------	-------	-------	---

- A) 15:48
 B) 15:49
 C) 15:50
 D) 15:51
 E) 15:52

22. 328 335 347 366 405 ?

- A) 409
 B) 417
 C) 445
 D) 455
 E) 470



- A)
- B)
- C)
- D)
- E)

25.

2	3	1	4
3	A	2	4
1	B	1	3
4	C	2	D

- A)

4	2
1	2
- B)

2	3
1	4
- C)

4	1
2	3
- D)

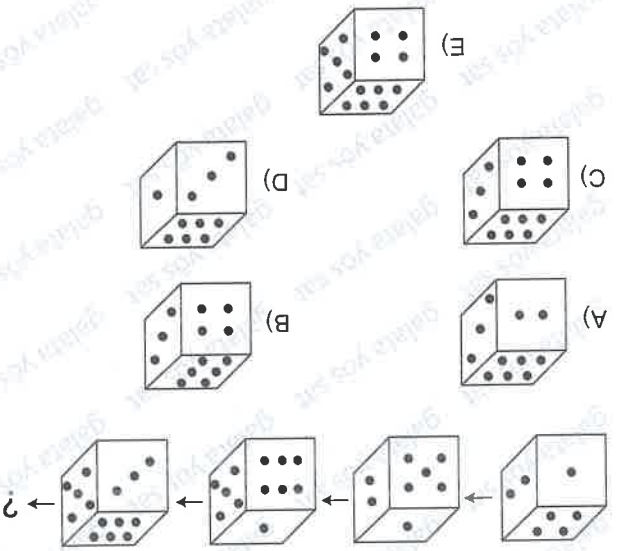
2	4
1	3
- E)

3	1
4	3

A	C
B	D

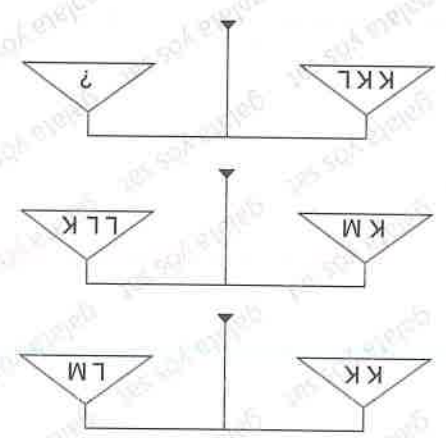
?

24.



?

- A) LM
B) MM
C) LL
D) KM
E) KL



27.

- A) ● B) ▽ C) ☆ D) □ E) ←

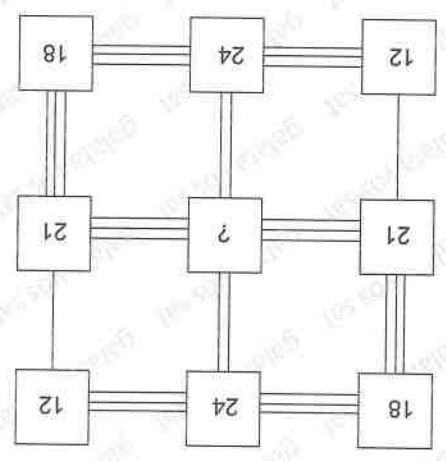
$\Rightarrow X = ?$

$(\leftarrow) + (\triangleright) + (\square) + (\bullet) + (\star) = X + \leftarrow$

●	▽	←	□	☆	←
▽	←	□	☆	●	□
←	□	☆	●	▽	☆
□	☆	●	▽	←	●
☆	●	▽	←	□	▽
←	□	☆	●	▽	+

26.

- A) 18
B) 21
C) 24
D) 27
E) 30



30.

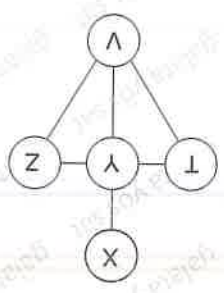
- A) 113
B) 104
C) 92
D) 75
E) 68

- 21 × 13 = 15
23 × 17 = 63
34 × 51 = 51
28 × 63 = ?

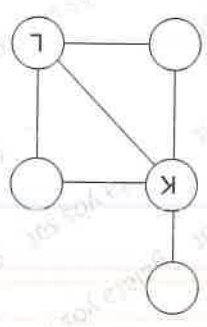
29.

- A) Y T
B) T Y
C) Y Z
D) X Y
E) Y V

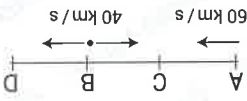
$K = ?$



$L = ?$



28.

1. 5 katının 3 eksiği 92 olan sayı kaçtır ?
Five times, minus three of a number is 92, what's the number?
A) 13 B) 14 C) 15 D) 17 E) 19
2. Bir kesrin payı paydasının 3 katıdır. Bu kesrin paydası paydasından 4 fazla olduğuna göre, kesrin paydası kaçtır ?
The numerator of a fraction is 3 times its denominator. Since the numerator of this fraction is 4 more than the denominator, what is the denominator of the fraction?
A) 5 B) 4 C) 3 D) 2 E) 1
3. Bir dikdörtgenin kenar uzunluklarının oranı $\frac{5}{3}$ tir. Bu dikdörtgenin çevresi 192 cm olduğuna göre, alanı kaç cm^2 dir ?
The ratio of side lengths of a rectangle is $\frac{5}{3}$. Since the circumference of this rectangle is 192 cm, how many cm^2 is its area?
A) 2140 B) 2160 C) 2170 D) 2180 E) 2190
4. 12 yıl sonraki yaşı şimdiki yaşının 2 katına eşit olacak. 12 yıl önceki yaşı şimdiki yaşının yarısına eşittir ?
All, 12 years later, will be equal to twice his current age, how many years ago is his age equal to half his current age?
A) 6 B) 7 C) 8 D) 9 E) 10
5. Bir işçi bir işi 15 saatte yapmaktadır. Çalışma kapasitesi %25 azalırsa aynı işi kaç saatte yapar ?
A worker can do a job in 15 hours. If his working capacity decreases by 25%, how many hours does he do the same job?
A) 24 B) 20 C) 18 D) 14 E) 12
6. 
A ve B noktalarından aynı anda hareket eden iki araç aynı yönde gittiklerinde kaç saat sonra aradaki arazı öndekine yetişir ?
If two vehicles moving simultaneously from points A and B drive in the opposite direction, since they meet after 4 hours, how many hours after they go in the same direction will the vehicle in between reach the one in front?
A) 20 B) 18 C) 15 D) 12 E) 10
7. Bir satıcı 10 yumurtayı 1 TL ye alıp, 8 yumurtayı 1 TL ye satıyor. Buna göre satıcının kar yüzüde kaçtır ?
A seller buys 10 eggs for 1 TL and sells 8 eggs for 1 TL. What is the percentage of the seller's profit accordingly?
A) 10 B) 15 C) 20 D) 24 E) 25
8. Su oranı % 70 olan 270 lt tuzlu su çözeltisine kaç lt su ilave edilirse tuz % 10 olur ?
How many liters of water is added to 270 liters of brine solution with 70% water, the salt becomes 10%?
A) 540 B) 400 C) 300 D) 250 E) 200

9. Yıllık % 8 faiz oranı ile bankaya yatırılan bir miktar para 1 yıl sonra faizi ile birlikte 54 TL olduğuna göre bankaya yatırılan para kaç TL dir ?

Since a sum of money deposited in the bank with an annual interest rate of 8% is 54 TL together with its interest after 1 year, how many TL is the money deposited in the bank?

- A) 40 B) 45 C) 48 D) 50 E) 52

10. All ve Ahmet bir galeriden aldıkları arabalar için yaptıkları ödemeler aşağıda verilmiştir.
The payments All and Ahmet made for the cars they bought from a gallery are given below.

Pesinat Yüzdesi % Aylık Takasit Tutarı TL	Down Payment Monthly Installment	Ahmet
25	1500	2000
40	2500	4000

Her ikisinin de yaptıkları peşin ödemelerden sonra takasile ödeyeceği toplam tutar eşittir. Her arabanın fiyatı 45 000 TL' den fazla olduğuna göre Ahmet' in almış olduğu arabanın fiyatı All' nin almış olduğu arabanın fiyatından en az kaç TL fazladır.

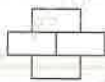
The total amount that they will pay in installments after the advance payments they both made is equal. Since the price of each car is more than 45 000 TL, how much is the price of the car that Ahmet bought at least TL more than the price of the car that All bought?

- A) 10 000 B) 12 000 C) 14 000 D) 16 000 E) 18 000

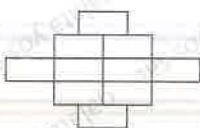
11. 90 araç alabilen bir otoparkta $x+4$ araç varken $4x+6$ araçlık boş yerli $2x+8$ araç varken $y-8$ araçlık boş yer kalmıyor. Buna göre y kaçtır ?
While there are $x+4$ vehicles in a car park that can accommodate 90 vehicles, there is an empty space for $4x+6$ vehicles, while there are $2x+8$ vehicles there is an empty space for $y-8$ vehicles. So what is y ?

- A) 48 B) 50 C) 52 D) 54 E) 58

12.



3 sıra / 3 rows
4 tuğla / 4 bricks



5 sıra / 5 rows
9 tuğla / 9 bricks

Yukarıda verilere göre, 13 sırası olan benzer bir şekilde

kaç tuğla vardır ?

How many bricks are there in a similar way with 13 rows, according to the above data?

- A) 37 B) 38 C) 45 D) 49 E) 53

13.

A	X	B				
			C			
				D		
					90	Y
					170	E

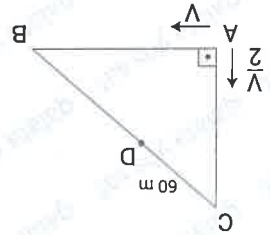
Sekildeki satır ve sütunların kesişiminde verilen sayılar, buldukları satır ve sütunun belirttiği iki şehir arasındaki yolun km cinsinden uzunluğunu göstermektedir. Örneğin A ile D şehirleri arasındaki yol 130 km dir.
A, B, C, D, E şehirleri aynı yol üzerinde ve yazılan sıradaki kullanıma göre, $x+y$ kaçtır ?

The numbers given at the intersection of the rows and columns in the figure show the length of the road in km between the two cities indicated by the row and column in which they are located.

For example, the road between A and D cities is 130 km. Since the cities A, B, C, D, E are on the same road and in the order written, what is $x+y$?

- A) 90 B) 100 C) 120 D) 130 E) 140

14.

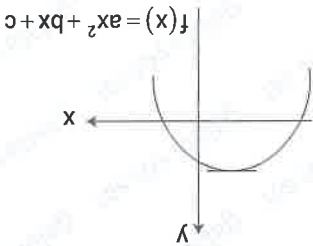


Şekildeki ABC dik üçgeninin, A köşesinde bulunan iki hareketli den biri B ye doğru saatteki V metre sabit hızla, diğeri de C ye doğru saatte $\frac{2}{3}$ metre sabit hızla aynı anda hareket etmektedir. Bu iki hareketli BC üzerinde D noktasında karşılaşıyorlar. $3 \cdot |AB| = 4 \cdot |AC|$ ve $|CD| = 60$ m olduğuna göre $|BC|$ uzunluğunu kaç m dir ?

In the right triangle ABC in the figure, one of the two motions at corner A starts to move at the same time towards B with a constant speed of V meters per hour and the other towards C at a constant speed of $\frac{2}{3}$ meters per hour. They meet at point D on these two motions $|BC|$. Since $3 \cdot |AB| = 4 \cdot |AC|$ and $|CD| = 60$ m How long is it?

- A) 320 B) 300 C) 280 D) 260 E) 240

17.



Tepe noktası analitik düzlemde II. bölgede olan $y = ax^2 + bx + c$ parabolüne göre aşağıdakilerden hangisi doğrudur ?

The peak of the analytical plane is in the II. region, which of the following is true according to the $y = ax^2 + bx + c$ parabola?

- A) $a \cdot (c-b) < 0$
 B) $(a+b) \cdot c < 0$
 C) $(a-c) \cdot b < 0$
 D) $a \cdot b \cdot c < 0$
 E) $a \cdot b + c > 0$

15.

Bir arag belli bir yolu x km/s hızla $a-3$ saatte almıştır. Aray hızını saatte 3 km arttırırsa aynı yolu kaç saatte alırdı ?

A vehicle traveled a certain distance at a speed x km / h in $a-3$ hours. How many hours would it take the same road if the vehicle increased its speed by 3 km per hour?

- A) $\frac{x(a-3)}{x+3}$
 B) $\frac{x}{ax+3}$
 C) $\frac{x-1}{a+3}$
 D) $\frac{x+3}{xa}$
 E) $\frac{x(a-3)}{x+3a-9}$

18.

Aşağıda verilen önermelerden hangisi doğrudur ? Which of the following propositions is true?

- A) $\forall x \in \mathbb{R}, x^2 > x$
 B) $\exists x \in \mathbb{R}, x^2 < x$
 C) $\forall x \in \mathbb{R}, x < \frac{1}{x}$
 D) $\forall x \in \mathbb{R}, x^2 < \frac{x^2}{1}$
 E) $\exists x \in \mathbb{R}, x-1 > x$

16. $(2x-1)(x-1) + (2x-1) \cdot (x-4) = 0$

Şitliğini sağlayan x değerlerinin toplamı kaçtır ?

What is the sum of the x values that satisfy the equation?

- A) $\frac{2}{3}$ B) 2 C) $\frac{2}{5}$ D) 3 E) $\frac{2}{7}$

19. $\lim_{\theta \rightarrow 0} \frac{\sin 2\theta + 2 \sin \theta - 1}{\cos 2\theta - 1} + \operatorname{cosec} \theta = ?$

- A) $\sin \theta$ B) $\cot \theta$ C) $-\cot \theta$ D) $-\sec \theta$ E) $\cos \theta$

23. p: x, 3' ün kati olan bir tam saydır.
q: x, 5' in kati olan bir tam saydır.
r: x, y çarpımı, 15' in kati bir tam saydır.

r: x, y is an integer that is a multiple of 15.
q: y is an integer that is a multiple of 5.
p: x is an integer that is a multiple of 3.

Buna göre

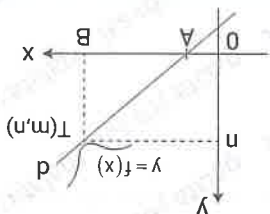
I. $(p \vee q) \Rightarrow r$

II. $(p \wedge r) \Rightarrow q$

III. $(q \vee p) \Rightarrow r$

Önemelelerinden hangileri kesinlikle doğrudur?
Which of its propositions are absolutely true?

A) I. B) II. C) I, III. D) I, II, III. E) I, II, III.



Yükarıdaki şekilde $y = f(x)$ fonksiyonu ile $T(m, n)$ noktasındaki teğetli olan d doğrusu verilmiştir. The line d, which is the tangent of the function $y = f(x)$ at the point $T(m, n)$, is given in the figure above.

$|AB| = 2 \cdot |OA| = 2 \cdot |BT|$ $h(x) = x \cdot f^2(x) \Rightarrow h'(m) = \frac{m \cdot n}{m \cdot n} = ?$

- A) $\frac{1}{2}$ B) $\frac{3}{2}$ C) $\frac{3}{4}$ D) 1 E) $\frac{4}{5}$

25. $(a_n) = \frac{3n^2 + 5n + 2}{n^2 + 4n} \Rightarrow \lim_{n \rightarrow \infty} (a_n) = ?$

- A) 1 B) 2 C) 6 D) 4 E) 3

22. $\int_3^4 \frac{1}{x} dx = \int_3^2 k(x-1)^3 dx \Rightarrow k = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

- A) 6 B) 5 C) 4 D) 2 E) -4

x, y, z are three consecutive terms of an arithmetic sequence, $5^x, 5^{2y+4}, 5^z$ are three consecutive terms of a geometric sequence.

So what is y?

Buna göre, y kaçtır?

21. x, y, z bir aritmetik dizinin ardışık üç terimi, $5^x, 5^{2y+4}, 5^z$ bir geometrik dizinin ardışık üç terimidir.

20. $\lim_{x \rightarrow 0} \frac{\sin 6x}{3 - \sqrt{9-x}} = ?$

- A) 6 B) 12 C) 18 D) 36 E) 48

24.

26. $f\left(\sqrt{x+\frac{1}{x}}\right) = x^2 + \frac{1}{x^2} \Rightarrow f'(3) = ?$

- A) 84 B) 88 C) 90 D) 96 E) 98

29. $x, y, z \in \mathbb{Z}$
 $\frac{y+z}{x} < \frac{x+z}{y}$

- A) $y > z$ B) $x > z$ C) $x > y$

- D) $y > x$ E) $z > x$

29. $\frac{y+z}{x} < \frac{x+z}{y}$ olduğundan hangisi kesinlikle doğrudur? Which of the following is absolutely true?

27. Aşağıdakilerden hangisi yanlıştır? Which of the following is false?

A) $\int_7^{-7} x^{15} dx = 0$
 B) $\int_3^{-3} x^8 dx = 2 \int_0^3 x^8 dx$
 C) $\int_{\frac{5\pi}{12}}^{\frac{5\pi}{12}} \cos x dx = 2 \cdot \int_{\frac{5\pi}{12}}^0 \cos x dx$
 D) $\int_{\frac{8\pi}{11}}^{\frac{8\pi}{11}} \sin x dx = 2 \cdot \int_{\frac{8\pi}{11}}^0 \sin x dx$
 E) $\int_2^{-2} x^3 dx = 0$



30.

p: a tek sayı / p: a odd number
 q: b çift sayı / q: b even number
 r: a + b tek sayı / r: a + b odd number
 s: a.b çift sayı / s: a.b even number
 Örneklere göre, her a ve b tam sayısı için
 Örneklere göre, her a ve b tam sayısı için
 Aşağıdaki önermelerden hangileri her zaman doğrudur?
 According to the examples, for each integer a and b

I. $r \wedge s \Rightarrow p \vee q$

II. $r \Leftrightarrow s$

III. $p \wedge r \Rightarrow q$

- A) I. B) III. C) II. D) I. E) II. III.

30. Aşağıdaki önermelerden hangileri her zaman doğrudur? Which of its propositions are always true?

1.

$\underline{A} = (7, 8)$ $\underline{B} = (-9, -9)$ $\underline{BA} = ?$

- A) $(-2, -1)$ B) $(-2, 1)$ C) $(2, -1)$
 D) $(16, 17)$ E) $(-16, -17)$

28. 100223 altı basamaklı sayısının rakamlarının yerleri değiştirilerek altı basamaklı kaç çift sayı yazılabilir? How many even numbers with six digits can be written by exchanging the digits of the six-digit number 100223?

- A) 720 B) 120 C) 96 D) 84 E) 60

2. A (3,4) B (-7,-1) C (2,-7) D (-x+2, -y-5) noktaları veriliyor / points are given.

$\overline{AC} = \overline{BD} \Rightarrow x - y = ?$

- A) 13 B) 10 C) 9 D) 8 E) 3

6. $\underline{U} = (2, -2)$

$\underline{V} = (6, -4)$

$\Rightarrow \langle \underline{U}, \underline{V} \rangle = ?$

- A) 0 B) -4 C) 4 D) 10 E) 20

7. $|\underline{U}| = 8, |\underline{V}| = 16$ \underline{U} ile \underline{V} arasındaki açı 135° Since the angle between \underline{U} and \underline{V} is 135° degrees

$\Rightarrow \langle \underline{U}, \underline{V} \rangle = ?$

- A) $-32\sqrt{2}$ B) $-64\sqrt{2}$ C) $32\sqrt{2}$ D) $64\sqrt{2}$ E) $108\sqrt{2}$

- A) I ve II B) yalnız II C) I ve III D) II ve III E) I, II, III

hangisi doğrudur ? / Which is true ?

I. $3\underline{V} = (-24, -48)$

II. $\frac{4}{\underline{V}} = (-2, -4)$

III. $\frac{8}{\underline{V}} = (1, -2)$

4. $\underline{A} = (-3, -4)$ $\underline{B} = (2, -9)$ $\underline{U} = (6, y+1)$

$\underline{AB} // \underline{U} \Rightarrow y = ?$

- A) 14 B) 10 C) -9 D) -7 E) -8

5. $\underline{U} = (3, -7)$ $\underline{V} = (x-9, -6)$ $\underline{U} \perp \underline{V} \Rightarrow x = ?$

- A) -5 B) $-\frac{7}{48}$ C) -7 D) -8 E) -9

9.

$\underline{U} = (9, -2)$

$\underline{V} = (7, 24)$

What is the length of the vertical projection vector of the vector \underline{U} on \underline{V} ?

\underline{U} vektörünün \underline{V} üzerindeki dik izdüşüm vektörünün uzunluğu nedir ?

- A) $\frac{5}{1}$ B) $\frac{5}{2}$ C) $\frac{5}{12}$ D) $\frac{5}{14}$ E) 1

ABCD paralelkenar

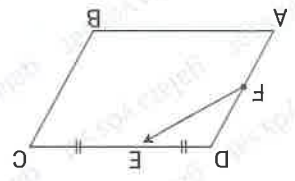
$DF = 3AF$

$|DE| = |EC|$

FE' nün \underline{AB} ve \underline{BC}

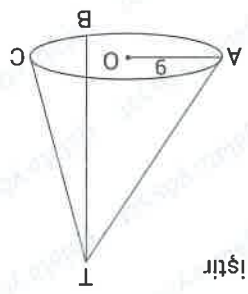
çisinden değeri nedir ?

What is FE in terms of \underline{AB} and \underline{BC} ?



- A) $\frac{3}{\underline{BC}} + \frac{4}{\underline{AB}}$ B) $\frac{4}{\underline{BC}} + \frac{2}{\underline{BA}}$ C) $\frac{3}{\underline{BC}} + \frac{4}{\underline{AB}}$ D) $3\underline{AB} - 4\underline{AB}$ E) $\frac{4}{\underline{BC}} + \frac{4}{\underline{AB}}$

10. Şekilde dik koni verilmiştir. Right cone is given



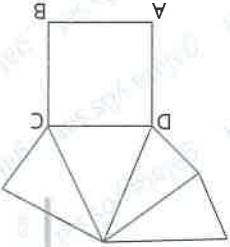
$|TB| = 15$
 $|AO| = 9$
 $V_{\text{koni}} = ?$
 $V_{\text{cone}} = ?$

- A) 1300π B) 321π C) 324π D) 350π E) 364π

11. $\vec{A} = (2, 9)$ $\vec{B} = (-1, 5)$ olduğuna göre $|\vec{A}| = ?$

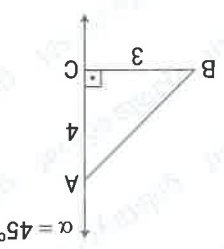
- A) 1 B) 2 C) 3 D) 4 E) 5

12. Yanda açılımı verilen ve taban alanı 36 br^2 olan kare piramidin açılımının çevresi 60 br ise bu piramidin yüksekliği nedir? If the circumference of the opening of the square pyramid with a base area of 36 br^2 is 60 br , what is the height of the pyramid?



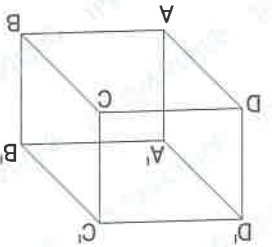
- A) $\sqrt{14}$ B) $2\sqrt{14}$ C) $3\sqrt{14}$ D) $5\sqrt{14}$ E) $6\sqrt{14}$

13. Şekildeki ABC dik üçgeni $|AC|$ kenarı boyunca 45° döndürülüyor. Oluşan şeklin hacmi nedir? The right triangle ABC in the figure is rotated 45° degrees along the $|AC|$ side. What is the volume of the formed shape?



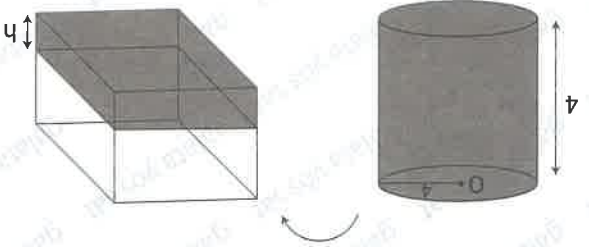
- A) 2π B) $\frac{3}{2}\pi$ C) $\frac{7}{2}\pi$ D) 4π E) $\frac{9}{2}\pi$

14. $(ABCD, A'B'C'D')$ dikdörtgen prizmanın yüzey alanları 20 , 24 ve $30'$ dur. Bu durumda, $V_{\text{prizma}} = ?$ $V_{\text{prizma}} = ?$



- A) 100 B) 110 C) 120 D) 140 E) 150

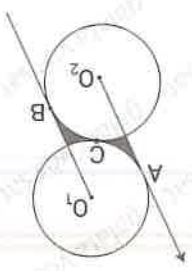
15.



İç su dolu olan silindirik taban çevresi 32 cm olan kare prizmaya boşatılıyor. Son durumda su kare prizmada ne kadar yükseklik $(h = ?)$ kadar yükseklikte olur? The cylinder filled with water is discharged into a square prism with a base circumference of 32 cm . In the last case, how much does water rise in a square prism $(h = ?)$

- A) π B) 2π C) 3π D) 4π E) 5π

16. O_1 ve O_2 merkezli eş daireler birbirine C' de teğettir. A ve B teğet noktaları O_1 ve O_2 merkezli eş daireler teğet noktası C' de teğettir. A and O_2 centered concentric circles are tangent to each other at C. A and B: tangent points



Shaded area = ?

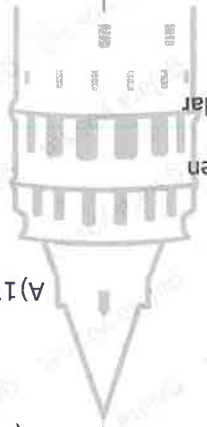
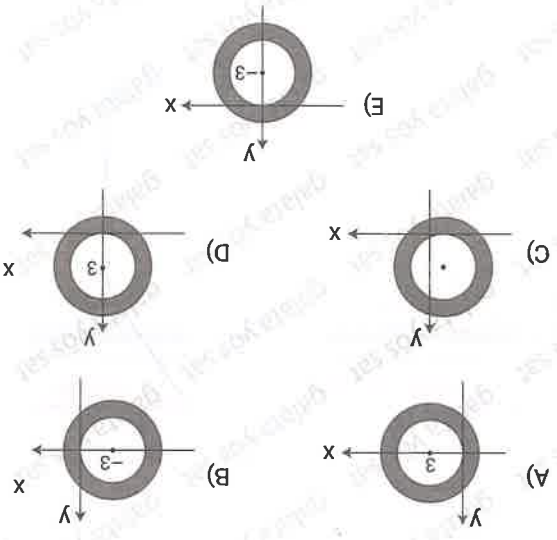
$\text{C} (AO_1BO_2) = 8 + 8\sqrt{3}$

- A) $12\sqrt{3} - 4\pi$
- B) $12\sqrt{3} + 4\pi$
- C) $16\sqrt{3} - 8\pi$
- D) $16\sqrt{3} - 4\pi$
- E) $16\sqrt{3} - 2\pi$

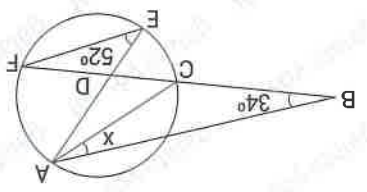
Which of the following is the graph of the particular region of the equation ?

17. $x, y \in \mathbb{R}$
 $A = \{(x, y) \mid 9 \leq x^2 + (y-3)^2 \leq 25\}$

denklemin belirli bölgenin grafini aşağıdaki kilerden hangisidir ?

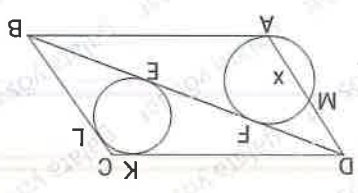


19. $m(\widehat{ABF}) = 34^\circ$
 $m(\widehat{AEF}) = 52^\circ$
 $m(\widehat{BAC}) = x = ?$



- A) 17
- B) 18
- C) 26
- D) 34
- E) 42

18. ABCD paralelkenar A, E, F, K, L teğet noktaları A, E, F, K, L: tangent points

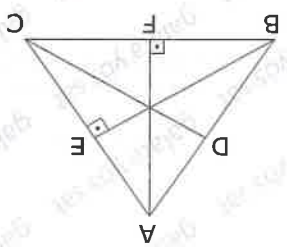


- A) $\frac{5}{42}$
- B) $\frac{3}{10}$
- C) $\frac{11}{12}$
- D) 11
- E) 9

- A) $h_c > h_a > h_b$
- B) $h_c > h_b > h_a$
- C) $h_a > h_b > h_c$
- D) $h_b > h_a > h_c$
- E) $h_a > h_c > h_b$

Relation between h_a, h_b, h_c

20. [AF] \perp [BC] [BE] \perp [AC] |BE| = h_b |AF| = h_a |AB| > |BC| > |AC|



olduğuna göre h_a, h_b, h_c arasındaki bağıntı ?

KTS 1 Cevap Anahtarı / Answer Key									
10	A	B	B	D	A	C	C	20	A
9	B	B	B	D	C	C	C	19	D
8	B	B	A	D	A	B	B	18	A
7	D	D	D	D	D	D	B	17	B
6	E	E	D	D	D	D	E	16	E
5	C	C	A	D	A	A	A	15	A
4	B	B	B	D	A	A	A	14	A
3	A	A	E	C	A	C	A	13	A
2	D	D	E	A	D	A	D	12	D
1	D	C	C	E	D	C	C	11	C
IQ									
Matematik / maths									
Geometri / Geometry									

KTS 2 Cevap Anahtarı / Answer Key									
10	E	E	C	A	D	D	D	20	E
9	E	E	C	B	A	A	A	19	A
8	C	C	C	B	B	C	C	18	D
7	A	A	A	D	A	C	C	17	B
6	B	B	D	D	C	D	D	16	E
5	D	D	E	B	C	C	A	15	A
4	B	B	A	A	A	A	A	14	A
3	C	C	C	A	C	D	A	13	A
2	E	A	A	A	A	E	D	12	D
1	A	D	E	C	C	D	A	11	C
IQ									
Matematik / maths									
Geometri / Geometry									

KTS 3 Cevap Anahtarı / Answer Key									
10	D	B	A	E	A	E	E	20	E
9	B	E	E	B	E	E	E	19	A
8	C	A	D	D	B	E	B	18	E
7	A	A	B	A	C	A	D	17	D
6	A	D	C	A	B	A	E	16	D
5	E	D	B	D	A	A	A	15	E
4	C	C	D	C	A	A	E	14	C
3	A	E	C	C	C	C	E	13	D
2	D	E	D	D	A	A	E	12	B
1	C	C	D	A	D	D	E	11	C
IQ									
Matematik / maths									
Geometri / Geometry									

KTS 4 Cevap Anahtarı / Answer Key									
10	E	C	A	B	C	D	E	20	B
9	C	B	D	E	C	C	D	19	A
8	A	D	D	D	B	B	B	18	E
7	C	A	D	D	C	C	C	17	C
6	A	D	D	D	C	C	B	16	B
5	E	C	C	B	A	A	E	15	A
4	D	D	D	E	D	D	B	14	B
3	C	E	E	C	C	D	D	13	D
2	A	D	D	A	B	D	A	12	D
1	B	D	D	E	C	C	C	11	D
IQ									
Matematik / maths									
Geometri / Geometry									

KTS 5		Gevap Anahatan / Answer key													
10	A	11	A	21	E	1	D	11	C	21	B	1	E	20	E
9	B	19	A	29	C	9	B	19	E	29	D	9	C	19	B
8	D	18	E	28	A	8	B	18	E	28	C	8	B	18	D
7	C	17	B	27	A	7	B	17	A	27	C	7	B	17	A
6	B	16	A	26	D	6	A	16	D	26	D	6	A	16	C
5	C	15	C	25	C	5	D	15	C	25	C	5	D	15	D
4	E	14	E	24	C	4	A	14	E	24	B	4	A	14	C
3	B	13	C	23	A	3	B	13	A	23	C	3	B	13	D
2	D	12	B	22	D	2	D	12	C	22	A	2	D	12	D
1	A	11	A	21	E	1	D	11	C	21	E	1	E	11	A
IQ		Matematik / maths										Geometri / Geometry			

KTS 6		Gevap Anahatan / Answer key													
10	E	20	A	30	B	10	A	20	B	30	A	10	E	20	C
9	A	19	C	29	C	9	D	19	E	29	C	9	A	19	B
8	B	18	B	28	E	8	C	18	E	28	B	8	B	18	E
7	C	17	C	27	A	7	C	17	A	27	D	7	B	17	D
6	D	16	E	26	D	6	D	16	C	26	C	6	C	16	C
5	C	15	C	25	A	5	B	15	E	25	E	5	B	15	E
4	C	14	B	24	A	4	A	14	D	24	E	4	C	14	C
3	B	13	A	23	D	3	D	13	C	23	D	3	B	13	D
2	E	12	D	22	A	2	D	12	D	22	D	2	C	12	C
1	D	11	D	21	B	1	B	11	E	21	C	1	C	11	B
IQ		Matematik / maths										Geometri / Geometry			

KTS 7		Gevap Anahatan / Answer key													
10	C	20	C	30	B	10	B	20	A	30	B	10	B	20	D
9	D	19	A	29	B	9	C	19	A	29	D	9	B	19	B
8	B	18	B	28	A	8	B	18	C	28	A	8	D	18	D
7	A	17	C	27	C	7	C	17	A	27	A	7	B	17	B
6	E	16	E	26	C	6	D	16	B	26	B	6	E	16	D
5	C	15	E	25	C	5	E	15	D	25	D	5	D	15	E
4	A	14	A	24	D	4	C	14	B	24	C	4	C	14	B
3	B	13	E	23	E	3	E	13	E	23	E	3	E	13	E
2	C	12	E	22	E	2	B	12	B	22	A	2	E	12	D
1	A	11	A	21	D	1	D	11	B	21	C	1	A	11	D
IQ		Matematik / maths										Geometri / Geometry			

KTS 8		Gevap Anahatan / Answer key													
10	D	20	E	30	D	10	D	20	E	30	C	10	D	20	D
9	B	19	A	29	E	9	B	19	A	29	E	9	A	19	C
8	A	18	A	28	A	8	B	18	D	28	D	8	D	18	D
7	E	17	B	27	D	7	E	17	D	27	D	7	C	17	E
6	C	16	D	26	C	6	C	16	C	26	A	6	C	16	D
5	C	15	E	25	B	5	A	15	B	25	B	5	A	15	C
4	B	14	A	24	C	4	A	14	E	24	D	4	D	14	E
3	D	13	B	23	C	3	D	13	E	23	A	3	B	13	C
2	A	12	E	22	B	2	E	12	B	22	C	2	A	12	E
1	C	11	E	21	D	1	A	11	C	21	B	1	D	11	A
IQ		Matematik / maths										Geometri / Geometry			

KTS 9		Cevap Anahtarı / Answer key	
10	A	20	C
9	D	19	C
8	B	18	B
7	A	17	E
6	E	16	D
5	E	15	B
4	C	14	C
3	D	13	A
2	D	12	D
1	B	11	A
IQ		Matematik / maths	
Geometri / Geometry		1	
10	A	20	D
9	D	19	D
8	B	18	A
7	A	17	E
6	E	16	B
5	E	15	A
4	C	14	A
3	D	13	D
2	D	12	E
1	B	11	A
IQ		Matematik / maths	
Geometri / Geometry		1	

KTS 10		Cevap Anahtarı / Answer key	
10	A	20	A
9	E	19	C
8	A	18	A
7	C	17	B
6	B	16	B
5	B	15	B
4	C	14	E
3	A	13	C
2	D	12	B
1	B	11	E
IQ		Matematik / maths	
Geometri / Geometry		1	
10	A	20	A
9	E	19	C
8	A	18	A
7	C	17	B
6	B	16	B
5	B	15	B
4	C	14	E
3	A	13	C
2	D	12	B
1	B	11	E
IQ		Matematik / maths	
Geometri / Geometry		1	

KTS 11		Cevap Anahtarı / Answer key	
10	D	20	D
9	A	19	A
8	C	18	E
7	B	17	C
6	B	16	B
5	C	15	A
4	D	14	D
3	D	13	C
2	B	12	E
1	A	11	D
IQ		Matematik / maths	
Geometri / Geometry		1	
10	D	20	D
9	A	19	A
8	C	18	E
7	B	17	C
6	B	16	B
5	C	15	A
4	D	14	D
3	D	13	C
2	B	12	E
1	A	11	D
IQ		Matematik / maths	
Geometri / Geometry		1	

KTS 12		Cevap Anahtarı / Answer key	
10	D	20	D
9	A	19	A
8	E	18	C
7	B	17	D
6	B	16	C
5	A	15	C
4	D	14	A
3	A	13	B
2	C	12	A
1	E	11	A
IQ		Matematik / maths	
Geometri / Geometry		1	
10	D	20	D
9	A	19	A
8	E	18	C
7	B	17	D
6	B	16	C
5	A	15	C
4	D	14	A
3	A	13	B
2	C	12	A
1	E	11	A
IQ		Matematik / maths	
Geometri / Geometry		1	

KTS 16 Cevap Anahtarı / Answer key

10	B	20	E	30	B	10	B	20	A					
9	C	19	C	29	D	9	A	19	E					
8	E	18	B	28	B	8	C	18	D					
7	E	17	D	27	C	7	D	17	C					
6	A	16	B	26	C	6	C	16	A					
5	A	15	B	25	D	5	B	15	E					
4	A	14	C	24	C	4	A	14	B					
3	E	13	C	23	D	3	B	13	E					
2	B	12	D	22	A	2	C	12	D					
1	A	11	C	21	C	1	A	11	A					
IQ					Matematik / maths					Geometri / Geometry				

KTS 15 Cevap Anahtarı / Answer key

10	B	20	D	30	D	10	B	20	B					
9	C	19	A	29	B	9	C	19	E					
8	B	18	D	28	C	8	A	18	B					
7	B	17	B	27	A	7	D	17	A					
6	C	16	C	26	D	6	D	16	B					
5	A	15	C	25	A	5	C	15	A					
4	D	14	A	24	D	4	E	14	D					
3	A	13	B	23	D	3	D	13	C					
2	E	12	A	22	D	2	A	12	E					
1	C	11	B	21	D	1	E	11	C					
IQ					Matematik / maths					Geometri / Geometry				

KTS 14 Cevap Anahtarı / Answer key

10	C	20	E	30	B	10	D	20	B					
9	B	19	A	29	B	9	D	19	A					
8	B	18	A	28	D	8	D	18	D					
7	D	17	C	27	A	7	D	17	A					
6	E	16	B	26	A	6	B	16	E					
5	B	15	B	25	C	5	A	15	C					
4	E	14	D	24	C	4	E	14	C					
3	D	13	B	23	B	3	C	13	B					
2	C	12	A	22	A	2	B	12	C					
1	E	11	C	21	B	1	E	11	E					
IQ					Matematik / maths					Geometri / Geometry				

KTS 13 Cevap Anahtarı / Answer key

10	C	20	E	30	A	10	A	20	B					
9	C	19	C	29	C	9	A	19	D					
8	E	18	B	28	A	8	B	18	D					
7	C	17	E	27	E	7	B	17	B					
6	C	16	B	26	D	6	D	16	D					
5	D	15	C	25	D	5	C	15	C					
4	A	14	C	24	D	4	A	14	A					
3	B	13	D	23	B	3	E	13	A					
2	B	12	C	22	C	2	D	12	E					
1	C	11	B	21	A	1	A	11	C					
IQ					Matematik / maths					Geometri / Geometry				

KTS 20

Cevap Anahtarı / Answer key

10	D	11	A	21	D	1	C	11	A	21	E	1	B	11	A
9	E	19	A	29	B	9	C	19	A	29	B	9	D	19	B
8	B	18	C	28	D	8	D	18	B	28	A	8	C	18	C
7	D	17	E	27	D	7	E	17	B	27	C	7	C	17	B
6	A	16	A	26	B	6	B	16	A	26	C	6	D	16	D
5	E	15	C	25	C	5	A	15	C	25	B	5	E	15	E
4	C	14	E	24	C	4	E	14	E	24	D	4	C	14	A
3	A	13	E	23	C	3	A	13	C	23	D	3	E	13	C
2	B	12	B	22	A	2	B	12	C	22	A	2	C	12	C
1	D	11	A	21	D	1	C	11	A	21	E	1	B	11	A
IQ			Matematik / maths						Geometri / Geometry						

KTS 19

Cevap Anahtarı / Answer key

10	D	11	C	21	B	1	C	11	A	21	D	1	D	11	D
9	C	19	A	29	A	9	A	19	A	29	A	9	E	19	E
8	E	18	E	28	E	8	D	18	A	28	E	8	D	18	E
7	A	17	C	27	B	7	A	17	C	27	C	7	D	17	B
6	E	16	D	26	D	6	D	16	C	26	A	6	A	16	E
5	B	15	D	25	C	5	B	15	E	25	C	5	E	15	C
4	C	14	A	24	B	4	D	14	E	24	C	4	A	14	D
3	D	13	E	23	E	3	E	13	A	23	E	3	B	13	A
2	A	12	A	22	D	2	D	12	E	22	C	2	D	12	A
1	C	11	B	21	C	1	A	11	A	21	D	1	D	11	D
IQ			Matematik / maths						Geometri / Geometry						

KTS 18

Cevap Anahtarı / Answer key

10	A	11	A	21	B	1	B	11	E	21	E	1	A	11	C
9	D	19	B	29	B	9	A	19	C	29	E	9	C	19	A
8	A	18	E	28	E	8	C	18	C	28	D	8	D	18	C
7	C	17	D	27	B	7	A	17	E	27	E	7	A	17	E
6	A	16	B	26	D	6	C	16	B	26	E	6	A	16	A
5	B	15	D	25	C	5	D	15	A	25	A	5	D	15	C
4	C	14	E	24	E	4	D	14	A	24	D	4	D	14	A
3	D	13	C	23	A	3	B	13	D	23	B	3	A	13	E
2	E	12	A	22	C	2	C	12	E	22	D	2	E	12	D
1	A	11	B	21	D	1	B	11	E	21	E	1	A	11	C
IQ			Matematik / maths						Geometri / Geometry						

KTS 17

Cevap Anahtarı / Answer key

10	B	11	A	21	B	1	C	11	B	21	A	1	E	11	C
9	E	19	B	29	C	9	C	19	D	29	C	9	E	19	A
8	A	18	D	28	C	8	E	18	E	28	E	8	A	18	A
7	E	17	B	27	E	7	E	17	C	27	B	7	D	17	C
6	D	16	A	26	E	6	C	16	B	26	C	6	C	16	C
5	B	15	A	25	B	5	D	15	C	25	B	5	B	15	D
4	B	14	C	24	B	4	A	14	D	24	C	4	C	14	B
3	A	13	B	23	D	3	E	13	A	23	A	3	D	13	A
2	A	12	D	22	A	2	E	12	D	22	D	2	B	12	A
1	D	11	A	21	B	1	C	11	B	21	A	1	E	11	C
IQ			Matematik / maths						Geometri / Geometry						

KTS 22		Cevap Anahtarı / Answer Key	
1	D	11	E
2	C	12	A
3	D	13	C
4	A	14	D
5	E	15	B
6	B	16	A
7	E	17	C
8	A	18	A
9	E	19	C
10	B	20	D
11	E	21	A
12	C	22	A
13	D	23	C
14	A	24	D
15	E	25	B
16	B	26	E
17	E	27	A
18	A	28	C
19	E	29	E
20	B	30	D
IQ			
Matematik / maths			
Geometri / Geometry			

KTS 23		Cevap Anahtarı / Answer Key	
1	A	11	E
2	C	12	E
3	E	13	D
4	B	14	C
5	D	15	A
6	B	16	B
7	C	17	C
8	D	18	C
9	A	19	C
10	D	20	E
11	A	21	B
12	E	22	A
13	C	23	D
14	B	24	D
15	D	25	A
16	E	26	A
17	C	27	B
18	D	28	E
19	B	29	E
20	C	30	E
IQ			
Matematik / maths			
Geometri / Geometry			

KTS 24		Cevap Anahtarı / Answer Key	
1	C	11	A
2	B	12	B
3	E	13	C
4	A	14	A
5	B	15	C
6	D	16	D
7	B	17	E
8	D	18	E
9	A	19	C
10	B	20	C
11	A	21	B
12	B	22	A
13	E	23	C
14	A	24	D
15	B	25	E
16	E	26	D
17	B	27	E
18	D	28	E
19	A	29	D
20	B	30	A
IQ			
Matematik / maths			
Geometri / Geometry			

KTS 21		Cevap Anahtarı / Answer Key	
1	D	11	E
2	B	12	D
3	A	13	C
4	C	14	D
5	B	15	B
6	D	16	E
7	B	17	D
8	D	18	A
9	C	19	D
10	C	20	A
11	A	21	C
12	D	22	D
13	B	23	E
14	C	24	E
15	B	25	B
16	A	26	E
17	C	27	B
18	B	28	C
19	B	29	B
20	D	30	E
IQ			
Matematik / maths			
Geometri / Geometry			

10	C	20	D	30	C	20	C	10	E	30	D	20	C	10	B				
9	A	19	B	29	C	19	C	9	C	29	B	19	D	9	D				
8	D	18	D	28	B	18	B	8	A	28	D	18	C	8	A				
7	C	17	E	27	C	17	C	7	E	27	E	17	B	7	D				
6	B	16	A	26	B	16	B	6	B	26	A	16	D	6	E				
5	E	15	B	25	A	15	B	5	A	25	B	15	B	5	C				
4	C	14	C	24	A	14	A	4	A	24	C	14	D	4	D				
3	D	13	B	23	C	13	D	3	C	23	B	13	D	3	B				
2	B	12	E	22	D	12	D	2	D	22	E	12	C	2	D				
1	A	11	D	21	E	11	A	1	E	21	D	11	E	1	B				
IQ										Matematik / maths					Geometri / Geometry				

10	D	20	E	30	B	20	E	10	B	30	E	20	A	10	D				
9	A	19	B	29	A	19	C	9	A	29	C	19	A	9	B				
8	C	18	C	28	A	18	A	8	A	28	E	18	D	8	A				
7	A	17	A	27	D	17	C	7	D	27	A	17	C	7	E				
6	B	16	C	26	E	16	E	6	E	26	B	16	C	6	B				
5	D	15	C	25	C	15	B	5	C	25	E	15	B	5	A				
4	E	14	E	24	B	14	D	4	B	24	E	14	B	4	C				
3	A	13	B	23	A	13	D	3	A	23	D	13	E	3	D				
2	D	12	C	22	A	12	B	2	A	22	B	12	A	2	D				
1	D	11	B	21	D	11	D	1	D	21	B	11	B	1	B				
IQ										Matematik / maths					Geometri / Geometry				

10	A	20	B	30	C	20	A	10	C	30	B	20	A	10	B				
9	A	19	D	29	C	19	A	9	E	29	D	19	C	9	A				
8	B	18	D	28	A	18	D	8	D	28	D	18	C	8	D				
7	E	17	B	27	C	17	B	7	C	27	B	17	A	7	D				
6	D	16	C	26	E	16	E	6	E	26	A	16	A	6	C				
5	A	15	C	25	D	15	D	5	D	25	A	15	C	5	C				
4	A	14	A	24	E	14	D	4	E	24	C	14	D	4	B				
3	E	13	B	23	E	13	E	3	E	23	B	13	A	3	C				
2	C	12	A	22	C	12	E	2	C	22	A	12	C	2	E				
1	D	11	B	21	C	11	D	1	B	21	E	11	C	1	E				
IQ										Matematik / maths					Geometri / Geometry				

10	C	20	C	30	B	20	D	10	D	30	A	20	A	10	A				
9	A	19	E	29	B	19	D	9	E	29	E	19	D	9	C				
8	B	18	B	28	E	18	E	8	B	28	E	18	A	8	C				
7	A	17	D	27	A	17	B	7	B	27	A	17	A	7	A				
6	E	16	D	26	A	16	B	6	C	26	A	16	C	6	A				
5	D	15	A	25	D	15	C	5	E	25	D	15	A	5	B				
4	C	14	B	24	D	14	E	4	D	24	B	14	D	4	C				
3	A	13	E	23	C	13	C	3	B	23	E	13	D	3	C				
2	C	12	B	22	B	12	A	2	D	22	B	12	B	2	D				
1	C	11	E	21	E	11	A	1	C	21	E	11	A	1	B				
IQ										Matematik / maths					Geometri / Geometry				

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Cevap Anahtarı / Answer key

10	E	20	C	30	E	10	E	20	D	19	E	30	D	10	C	20	A
9	D	19	C	29	D	9	A	19	D	18	B	28	B	9	C	19	B
8	B	18	E	28	E	8	A	18	B	17	E	27	D	8	A	18	B
7	C	17	B	27	B	7	C	17	E	16	D	26	D	7	B	17	D
6	A	16	D	26	A	6	A	16	D	15	C	25	B	6	E	16	C
5	C	15	B	25	C	5	C	15	B	14	D	24	C	5	A	15	A
4	E	14	D	24	B	4	E	14	D	13	C	23	A	4	D	14	C
3	D	13	C	23	A	3	D	13	C	12	D	22	D	3	A	13	B
2	B	12	A	22	A	2	B	12	D	11	D	21	A	2	E	12	C
1	E	11	D	21	D	1	C	11	D	10	E	20	D	1	D	11	E
IQ			Matematik / maths						Geometri / Geometry								

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Cevap Anahtarı / Answer key

10	C	20	A	30	D	10	A	20	A	19	E	29	A	10	C	20	B
9	E	19	E	29	A	9	E	19	C	18	B	28	B	9	C	19	C
8	B	18	B	28	D	8	A	18	B	17	A	27	A	8	A	18	E
7	A	17	C	27	E	7	C	17	A	16	C	26	C	7	C	17	A
6	C	16	D	26	C	6	A	16	C	15	E	25	E	6	D	16	C
5	E	15	A	25	B	5	B	15	E	14	B	24	B	5	A	15	A
4	D	14	A	24	C	4	E	14	B	13	E	23	C	4	B	14	C
3	D	13	B	23	A	3	A	13	E	12	D	22	C	3	E	13	C
2	C	12	E	22	D	2	A	12	D	11	D	21	D	2	C	12	D
1	B	11	B	21	E	1	C	11	D	10	E	20	A	1	A	11	B
IQ			Matematik / maths						Geometri / Geometry								