

ULUSLARARASI ÖĞRENCİ SINAVI | INTERNATIONAL STUDENT EXAM
TEMEL ÖĞRENME BECERİLERİ TESTİ | BASIC LEARNING SKILLS TEST

22.08.2020

A

GENEL AÇIKLAMA
GENERAL INSTRUCTIONS

ADI
NAME _____
SOYADI
SURNAME _____
ADAY NO
APPLICANT NUMBER _____
SINAV SALON NO
EXAM ROOM NUMBER _____

Adınızı, soyadınızı, aday numarası ve sınav salon numaranızı yukarıya yazınız.

Write your name, surname, applicant number and exam room numbers in the appropriate places above.

Bu testlerin her hakkı saklıdır. Hangi amaçla olursa olsun, testlerin tamamının veya bir kısmının Merkezimizin yazılı izni olmadan kopya edilmesi, fotoğrafının çekilmesi, herhangi bir yolla çoğaltılması, yayımlanması ya da kullanılması yasaktır. Bu yasağa uymayanlar gerekli cezai sorumluluğu ve testlerin hazırlanmasındaki mali külfeti peşinen kabullenmiş sayılır.

ONDALIK KESİRLERİ GÖSTERMEK İÇİN
TÜRKÇE METİNLERDE VİRGÜL (,) KULLANILIR.

DECIMALS ARE INDICATED BY A COMMA (,) IN TURKISH.

1. $\frac{K}{\frac{L}{7}} - \frac{L}{\frac{M}{5}} \Rightarrow \frac{K+2L+3M-12}{6M} = ?$

- A) 8 B) 2 C) 4 D) 6 E) 0

2. $\frac{1}{3} + \left[\frac{1,26}{12,6} \div \left(\frac{0,1}{4} - \frac{2}{5} \right) \right] = ?$

- A) $\frac{1}{3}$ B) $\frac{1}{5}$ C) $\frac{1}{15}$ D) $\frac{1}{45}$ E) $\frac{3}{5}$

3. $\frac{2 - (-2)^3}{(-2)^{-2} - (-1)^{-1}} = ?$

- A) $\frac{-24}{3}$ B) $\frac{25}{3}$ C) 4 D) 6 E) 8

4. $a \equiv 3 \pmod{7} \Rightarrow a^3 + 2a^2 + 1 \equiv ? \pmod{7}$

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

5. $\frac{0,1}{1 + \frac{1}{(0,1)^{-1}} - \frac{1}{1 + (0,1)^{-1}}} = ?$

- A) $\frac{10}{11}$ B) $\frac{11}{21}$ C) $\frac{110}{111}$ D) 11 E) $\frac{11}{111}$

6. $\frac{\begin{matrix} XY \\ XZ \\ x \end{matrix}}{1224} \cdot Y+Z=10 \Rightarrow X.Y.Z = ?$

- A) 36 B) 48 C) 56 D) 72 E) 96

7. $\sqrt[4]{2^x} + \sqrt[8]{4^x} + \sqrt[12]{8^x} = 48 \Rightarrow x = ?$

- A) 16 B) 12 C) 8 D) 6 E) 4

8. $\left. \begin{matrix} x + \frac{3}{y} = 4 \\ y + \frac{3}{x} = 8 \end{matrix} \right\} \Rightarrow \frac{y+x}{y-x} = ?$

- A) 1 B) 3 C) 4 D) $\frac{8}{3}$ E) 2

9. $\frac{-a}{3} = \frac{-b}{4} = \frac{-c}{8}$, $a+c=2b+9 \Rightarrow \frac{c-a}{b} = ?$

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

10. $\frac{27^{2n} - 9^{3n+1}}{3^{6n-1}} - \frac{4^{3n} - 8^{2n-1}}{2^{6n-3}} = ?$

- A) 32 B) -31 C) -16 D) 16 E) $\frac{43}{24}$

11. $\frac{x^2 - y^2 - 4y - 4}{x^2 - 2xy + y^2 - 4} = ?$

- A) $\frac{x-y-2}{x-y+2}$ B) $\frac{x+y+2}{x-y+2}$ C) $\frac{x+y-2}{x+y+2}$

- D) $\frac{x-y+2}{x+y+2}$ E) $\frac{x-y+2}{x-y-2}$

12. $\left. \begin{array}{l} x = \frac{1}{a} + \frac{1}{b} \\ y = \frac{1}{a} - \frac{1}{b} \end{array} \right\} \Rightarrow \frac{x^2b - y^2b}{x+y} - 1 = ?$

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

13. $\left. \begin{array}{l} \sqrt[b]{3^a} = 4 \\ 2^{2b} = 27 \end{array} \right\} \Rightarrow a = ?$

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

14. $\frac{6}{1 + \frac{4}{1 + \frac{1}{2+x}}} = 2 \Rightarrow x = ?$

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

15. $(7x - 120)^{323 - 17x} = 1$

eşitliğini sağlayan x sayılarının toplamı kaçtır?

What is the sum of the number of x that provide the equality?

- A) $\frac{245}{7}$ B) $\frac{254}{7}$ C) $\frac{323}{7}$ D) $\frac{373}{7}$ E) $\frac{377}{7}$

16. $a, b, c \in \mathbb{R}^+$, $a \cdot b = \frac{4}{9}$, $a \cdot c = \frac{1}{3}$, $b \cdot c = \frac{3}{4}$

ise aşağıdakilerden hangisi doğrudur?

If $a, b, c \in \mathbb{R}^+$, $a \cdot b = \frac{4}{9}$, $a \cdot c = \frac{1}{3}$, $b \cdot c = \frac{3}{4}$ then which of the following is true?

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

17. $\frac{8x+9}{(2x-3)^2} > 1$ eşitsizliğini sağlayan tüm x sayılarının kümesi nedir?
 What is the set of all number of x that provide the inequality?

A) $(-1,6)$ B) $(-1,6) - \left\{ \frac{3}{2} \right\}$ C) $(0,6) - \left\{ \frac{3}{2} \right\}$
 D) $(0,5) - \left\{ \frac{3}{2} \right\}$ E) $(-1,5) - \left\{ \frac{3}{2} \right\}$

18. $\left. \begin{array}{l} x = |x| \\ x \cdot y < 0 \end{array} \right\} \Rightarrow |x-y| - |y-x| = ?$

A) $-2x$ B) $-2y$ C) 0 D) $x-y$ E) $2x$

19. $x < y < 0$, $\frac{\sqrt{y^4} + 2\sqrt{y^2}}{y} - \sqrt{x^2 - 2xy + y^2} = -5 \Rightarrow x = ?$

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

20. $n \in \mathbb{Z}^+, A_n = \left\{ x \in \mathbb{R} : \frac{(-1)^n n}{n+1} < x < \frac{2n}{n+1} \right\} \Rightarrow A_3 \setminus (A_1 \cup A_2) = ?$

A) $\left(\frac{-1}{2}, \frac{3}{4} \right)$ B) $\left(\frac{-1}{2}, \frac{3}{4} \right) \cup \left(\frac{3}{4}, \frac{4}{3} \right)$ C) $\left[\frac{-3}{4}, \frac{3}{2} \right)$
 D) $\left[\frac{-3}{2}, \frac{3}{4} \right) \cup \left(\frac{3}{4}, \frac{3}{2} \right]$ E) $\left(\frac{-3}{4}, \frac{-1}{2} \right] \cup \left[\frac{4}{3}, \frac{3}{2} \right)$

21. $s(B) = 6x$, $s(B \cap A^c) = 9$, $s(A \cap B) = x^2 \Rightarrow x = ?$

- A) 3 B) 6 C) 9 D) 11 E) 20

22. $A = \{x: |x + 1| \geq 2, x \in \mathbb{R}\}$
 $B = \{x: |x - 1| < 5, x \in \mathbb{Z}\} \Rightarrow s(A \cap B) = ?$

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

23. $f\left(\frac{2x}{3} + 2\right) = \frac{x}{3} - 4$, $g(x) = \frac{x-5}{2} \Rightarrow (f^{-1} \circ g)(3) = ?$

- A) 6 B) 8 C) 9 D) 11 E) 12

24. $f(x) = 2^{x-1} f(x-1)$, $f(1) = 1 \Rightarrow f(50) = ?$

- A) 2^{1220} B) 2^{1222} C) 2^{1223} D) 2^{1224} E) 2^{1225}

25. $f(x) = x^2 + x - 1, g(x) = \frac{x-1}{2} \Rightarrow (f \circ g^{-1})(1) = ?$

- A) 1 B) 3 C) 11 D) 13 E) 17

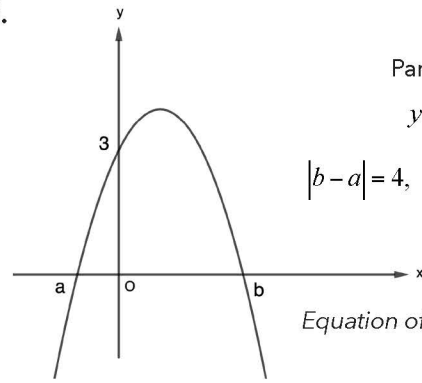
26. $P(x+1) = 3x^2 - 2x + 6 \Rightarrow P(2x-3) \mid x+2$
 $\underline{\hspace{2cm}} \mid \underline{\hspace{2cm}}$
 ?

- A) 6 B) 22 C) 152 D) 192 E) 214

27. $P(x+3) + P(x+1) = 2x^2 + 8x + 16 \Rightarrow P(3) = ?$

- A) 14 B) 12 C) 8 D) 6 E) 4

28.



Parabolün denklemi
 $y = -x^2 + mx + 3$ tür,

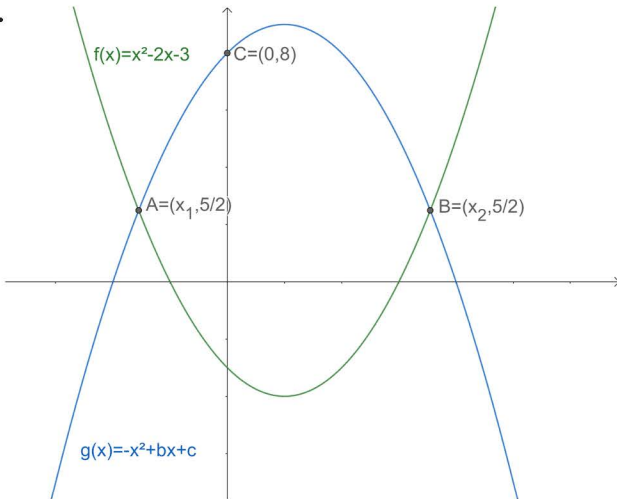
$$|b-a| = 4, |b| > |a| \Rightarrow m = ?$$

Equation of given parabola is
 $y = -x^2 + mx + 3$

$$|b-a| = 4, |b| > |a| \Rightarrow m = ?$$

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

29.



$f(x)$ ve $g(x)$ parabol $\Rightarrow g(x) = ?$

If $f(x)$ and $g(x)$ are parabolas $\Rightarrow g(x) = ?$

- A) $-x^2 - 2x + 4$ B) $-x^2 + 2x + 4$ C) $-x^2 + 2x + 8$
 D) $-x^2 - 2x - 8$ E) $-x^2 + 2x - 4$

30.

$$z_1 = 3 + 2i, z_2 = 1 - 4i \Rightarrow \operatorname{Im}\left(\frac{z_1}{z_2}\right) - \operatorname{Re}\left(\frac{z_1}{z_2}\right) = ?$$

- A) $-\frac{9}{17}$ B) $\frac{9}{17}$ C) $-\frac{19}{17}$ D) $\frac{19}{17}$ E) 19

31.

$$i^2 = -1 \Rightarrow \frac{5}{i^{2020}} - \frac{1+i^{2019}}{1+i^{2021}} = ?$$

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

32. $\log_7 2 = x^2$, $\log_8 7 = y^{-2}$ $\log_{16} 49 = ?$

A) $\frac{y^2}{x^2 y^2 + 1}$ B) $\frac{x^2}{x^2 y^2 + 1}$ C) $\frac{2}{x^2 + y^2}$

D) $\frac{2}{x^2 - y^2 + 1}$ E) $\frac{1}{x^2 y^2 + 1}$

33. $\frac{7^{-x} - 7^x}{3} = 2 \Rightarrow x = ?$

A) $-3 + \sqrt{10}$ B) $-3 - \sqrt{10}$ C) $\log_7(-3 - \sqrt{10})$

D) $\log_7(-3 + \sqrt{10})$ E) $\ln(-1 + \sqrt{7})$

34. $x \in \left(0, \frac{\pi}{2}\right)$ $\tan x = \frac{\log_5 2}{\sqrt{\log_5 \left(\frac{5}{2}\right) \log_5(10)}} \Rightarrow \sin x = ?$

A) $\log_5 2$ B) $\log_2 5$ C) $\log_{10} 5$ D) $\frac{1}{2}$ E) $\log_{25} 2$

35. $f(x) = -x^3 + ax^2 - 5x + 3$, $g(x) = 3x^4 + 2$

$\frac{d}{dx}(f+g)(1) = 8 \Rightarrow a = ?$

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

36. $f(x) = \frac{x^2 - 1}{2x - 1} \Rightarrow f'(1) = ?$

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

37. $\lim_{x \rightarrow 0} \frac{f(x)}{x^2 - 1} = 5 \Rightarrow \lim_{x \rightarrow 0} \frac{5f(x)}{x - 1} = ?$

- A) 25 B) 5 C) 1 D) 0 E) -5

38. $\lim_{x \rightarrow 1} \frac{\sqrt[3]{x} - 1}{\sqrt{x} - 1} = ?$

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

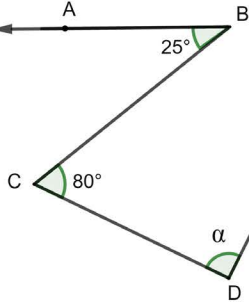
39. $\int_a^b f(x)f'(x)dx = 54, f(a) - f(b) = 18 \Rightarrow \frac{f(b)}{f(a)} = ?$

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

40. $\int_{-1}^2 |1 - x^2| dx = ?$

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

41.



$$[AB] \parallel [EF]$$

$$m(\angle ABC) = 25^\circ$$

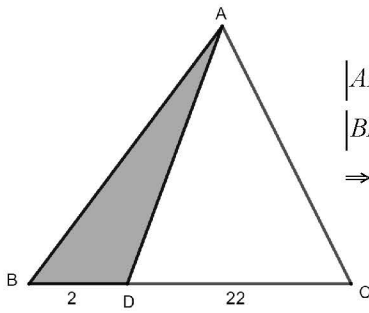
$$m(\angle DEF) = 140^\circ$$

$$m(\angle BCD) = 80^\circ$$

$$m(\angle CDE) = \alpha = ?$$

- A) 65° B) 70° C) 75° D) 80° E) 85°

42.



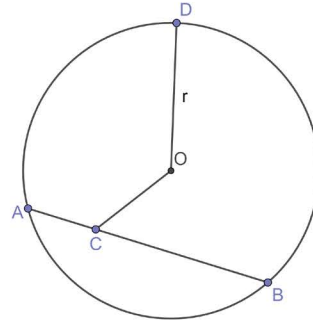
$$|AB| = |AC| = 13$$

$$|BD| = 2, \quad |DC| = 22$$

$$\Rightarrow A(\triangle ABD) = ?$$

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

43.



$$|AB| = 8$$

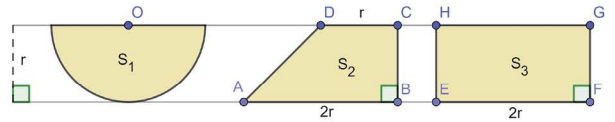
$$|BC| = 6$$

$$|OC| = 2\sqrt{3}$$

$$\Rightarrow |OD| = ?$$

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

44.



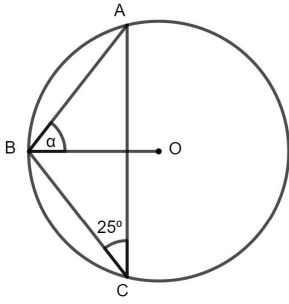
Aşağıdaki sıralamalardan hangisi doğrudur?

Which of the following sortings is correct?

- A) $S_1 < S_2 < S_3$ B) $S_1 < S_3 < S_2$ C) $S_2 < S_1 < S_3$

- D) $S_2 < S_3 < S_1$ E) $S_3 < S_2 < S_1$

45.

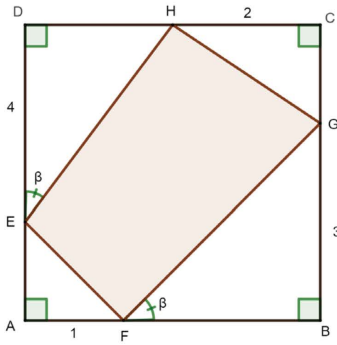


$$m(\angle BCA) = 25^\circ$$

$$m(\angle ABO) = \alpha = ?$$

- A) 55° B) 60° C) 65° D) 70° E) 75°

46.

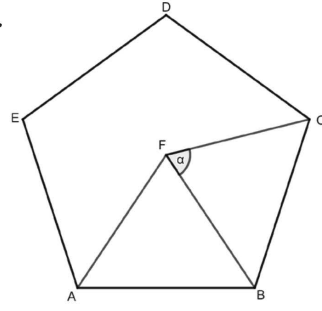


ABCD bir karedir
 $m(\angle DEH) = m(\angle GFB)$
 $A(EFGH) = ?$

ABCD is a square
 $m(\angle DEH) = m(\angle GFB)$
 calculate $A(EFGH)$

- A) $\frac{21}{2}$ B) $\frac{23}{2}$ C) $\frac{25}{2}$ D) $\frac{27}{2}$ E) $\frac{29}{2}$

47.



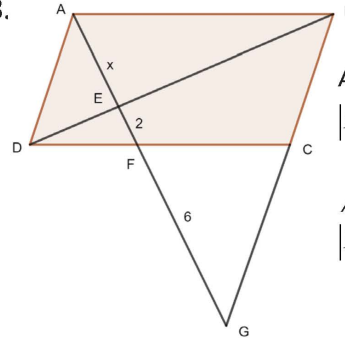
ABCDE bir beşgen,
 ABF bir eşkenar üçgendir.

ABCDE is a regular
 pentagon and ABF is an
 equilateral triangle.

$$m(\angle BFC) = \alpha = ?$$

- A) 66° B) 65° C) 64° D) 63° E) 62°

48.

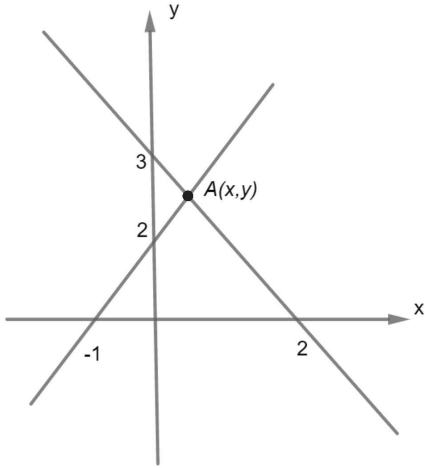


ABCD paralelkenar
 $|EF| = 2, |FG| = 6 \Rightarrow x = ?$

ABCD is a parallelogram
 $|EF| = 2, |FG| = 6 \Rightarrow x = ?$

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

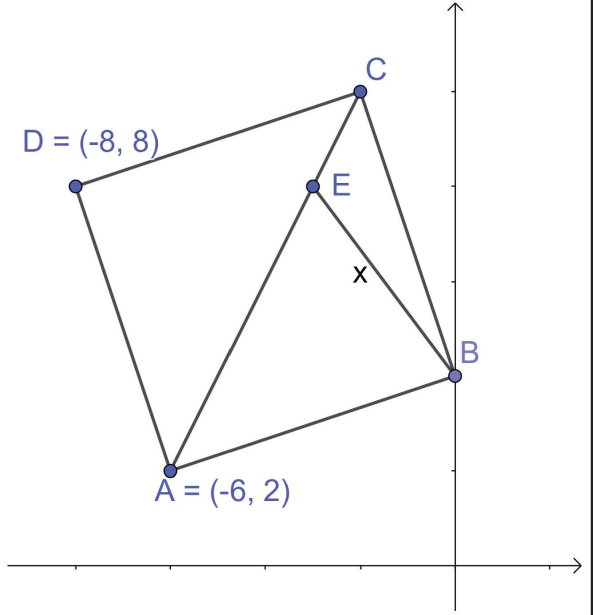
49.



$$y) \Rightarrow x + y = ?$$

- A) $\frac{2}{7}$ B) $\frac{5}{2}$ C) $\frac{10}{7}$ D) 2 E) $\frac{20}{7}$

50.

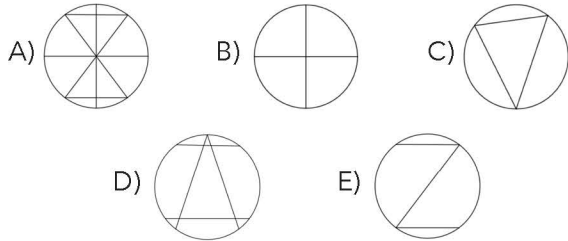
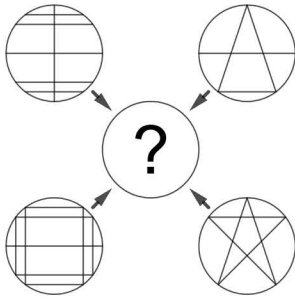
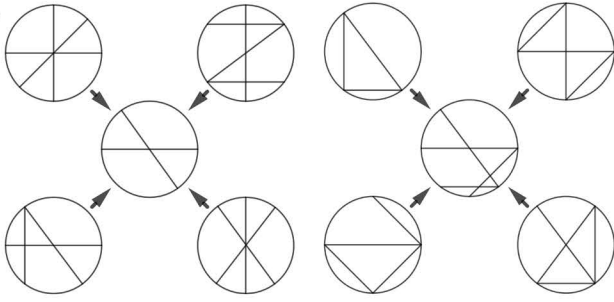


ABCD bir kare ve $|AE| = 3|EC|$ ise
 $|EB|$ 'nin uzunluğu nedir?

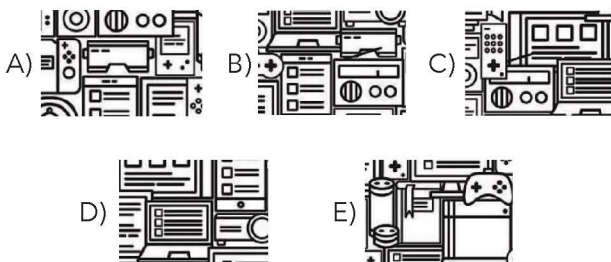
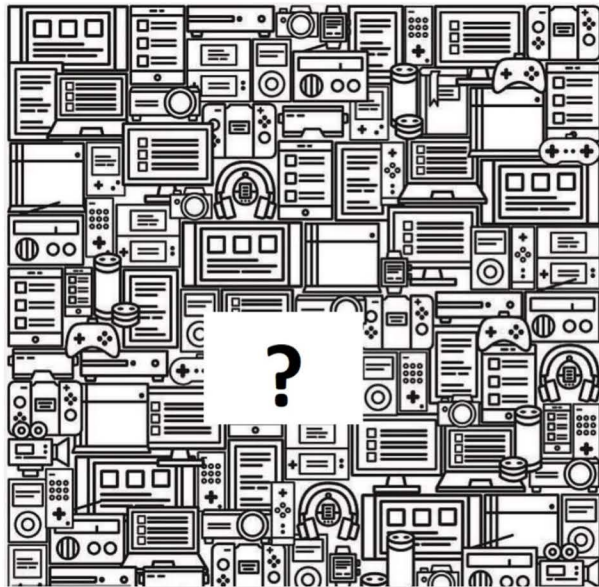
If ABCD is a square and $|AE| = 3|EC|$ then
 what is the length of the $|EB|$?

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

51.

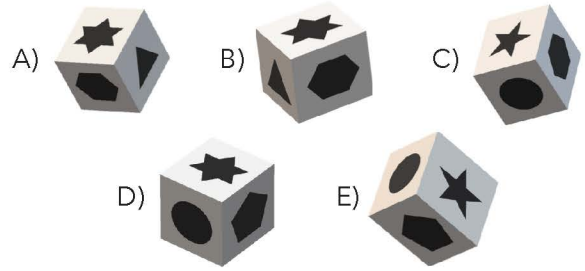
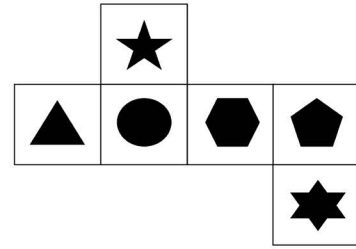


52.

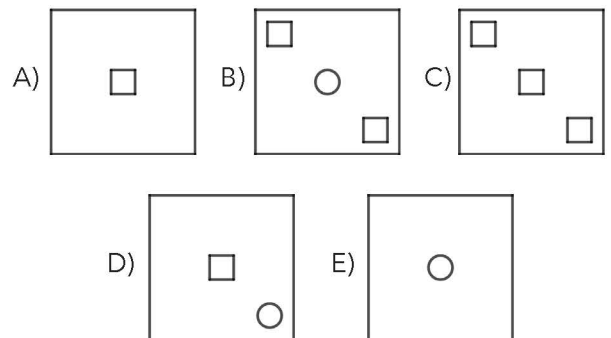
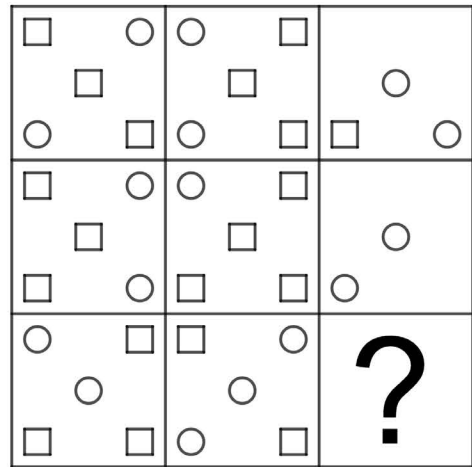


53. Aşağıdaki şeklin katlanmasıyla oluşabilecek küp hangisidir?

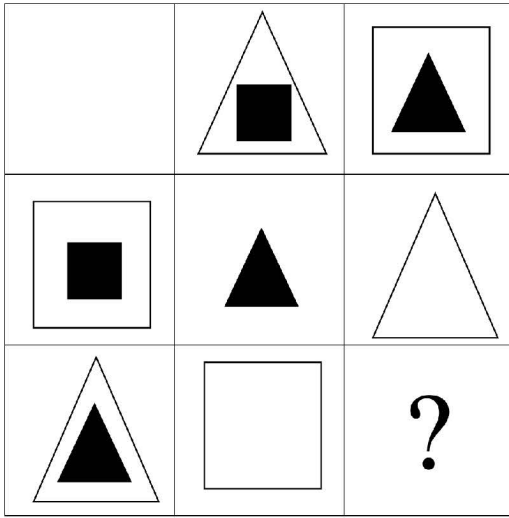
Which cube is the folded form of the following shape?



54.



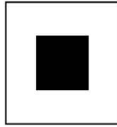
55.



A)



B)



C)



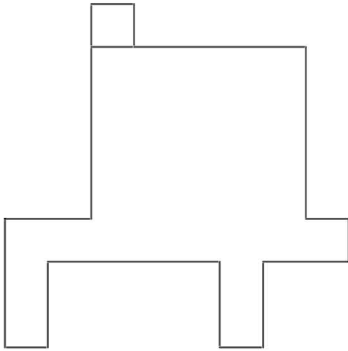
D)



E)



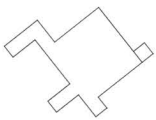
56.



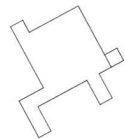
Aşağıdaki şekillerden hangisi yukarıdaki şekille özdeştir?

Which shape below is identical to the shape above?

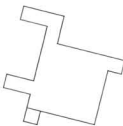
A)



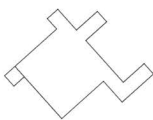
B)



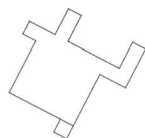
C)



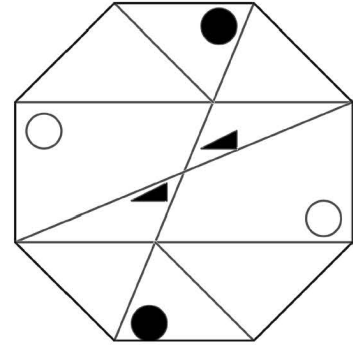
D)



E)



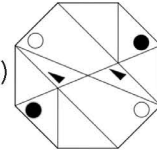
57.



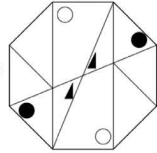
Yukarıdaki şekil saat yönünde 225 derece döndürülürse aşağıdakilerden hangisi elde edilir?

Which of the following is the shape above rotated by 225 degrees clockwise?

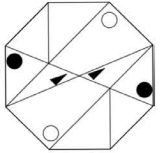
A)



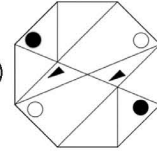
B)



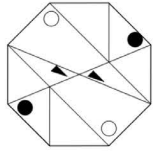
C)



D)



E)



58.

$$\begin{array}{r}
 ABC \\
 ABC \\
 ABC \\
 + ABC \\
 \hline
 1704
 \end{array}
 \quad A + B = ?$$

A) 5

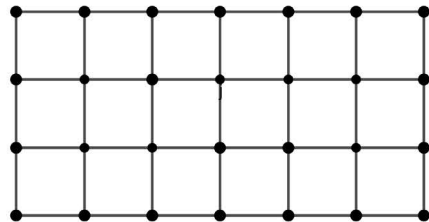
B) 6

C) 7

D) 8

E) 9

59.



Şekilde kaç adet kibrit (1 birim uzunluğunda) vardır?

How many matches (1 unit long) are there in that figure ?

A) 32

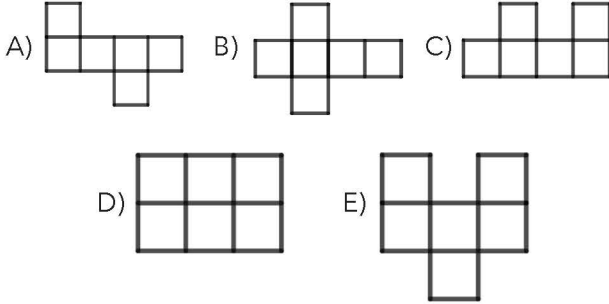
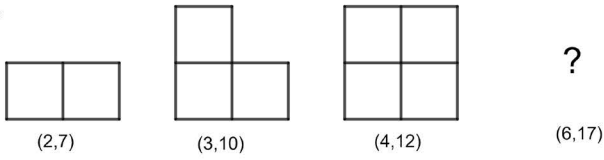
B) 38

C) 42

D) 45

E) 48

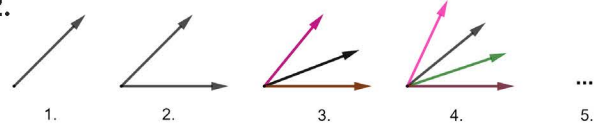
60.

61. Aşağıdaki aritmetik diziye göre $a_8 = ?$ According to following arithmetic sequence, calculate a_8

-5	50
↓						↓
a_1						a_{12}

- A) 20 B) 25 C) 30 D) 35 E) 40

62.



Number of ray Işın sayısı	1	2	3	4	5
Number of angle Açı sayısı	0	1	3	6	?

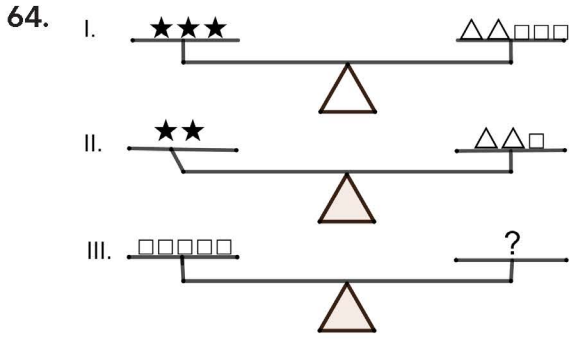
- A) 8 B) 9 C) 10 D) 11 E) 12

63.

+	★	○	△
△	⊕	★	○
○	▽	⊕	★

 $\Rightarrow 4\Delta = ?$

- A) ★ B) △ C) ▽ D) ○ E) ⊕



- A) $\star\star\Delta$ B) $\star\Delta\Delta$ C) $\star\star\Delta\Delta$ D) $\star\Delta\Delta\Delta$ E) $\star\star\star\Delta$

65.
$$\left. \begin{array}{cccc} \Delta & \otimes & \diamond & \square \\ \otimes & \square & \oplus & \circ \\ \diamond & \circ & \otimes & \Delta \\ \circ & \oplus & \square & \diamond \\ \square & \diamond & \Delta & \oplus \end{array} \right\} \begin{array}{l} 5123 \quad 1765 \quad 2671 \\ 3256 \quad 6537 \end{array}$$

$\circ \oplus \square \diamond = ?$

- A) 1765 B) 5123 C) 6537 D) 3256 E) 2671

66.

$\frac{a}{c}$	$a.b$	d^b
	a	b
	c	d
c^a	$c.d$	$\frac{b}{d}$

Yukarıdaki şekilde a, b, c ve d birer pozitif tamsayıyı göstermektedir. Aşağıdaki verilen şekle göre $B-A=?$

a, b, c and d denote a positive integer in the above figure. According to the following figure $B-A=?$

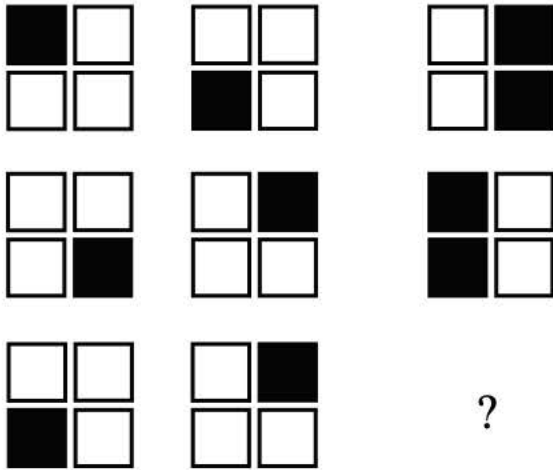
	A	
		6
	6	
36	B	3/4

- A) 30 B) 36 C) -12 D) 15 E) -9

67. 2, 6, 12, x, 42, ... x = ?

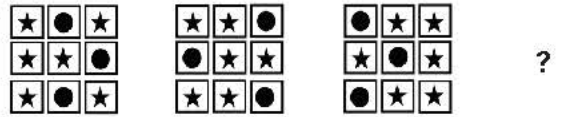
- A) 14 B) 20 C) 24 D) 34 E) 40

68.



- A) B) C)
 D) E)

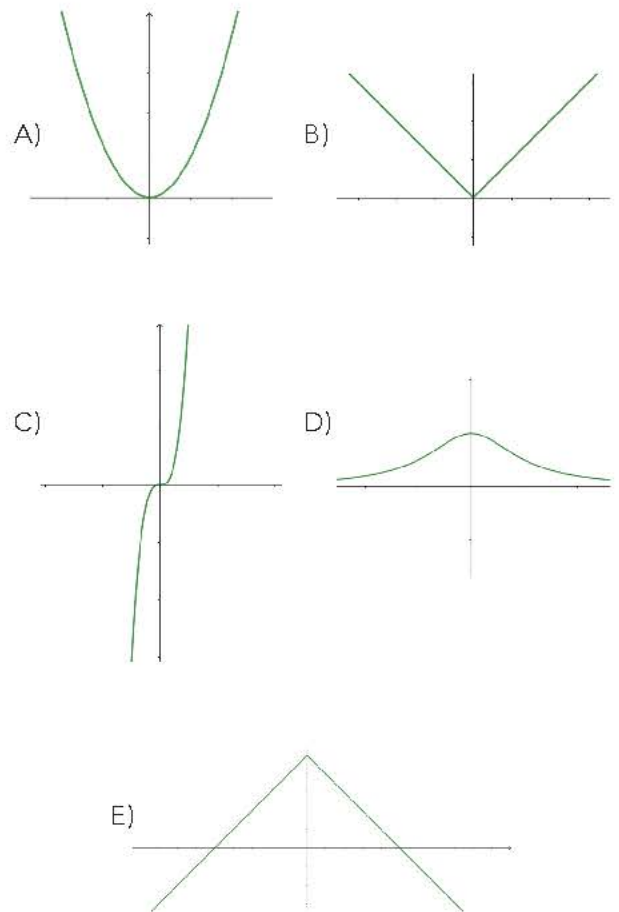
69.



- A) B) C)
 D) E)

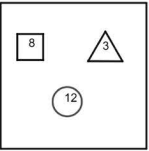
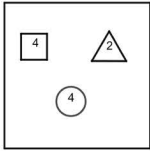
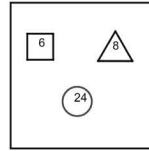
70. Hangisi farklıdır?

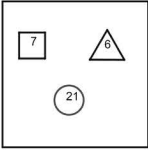
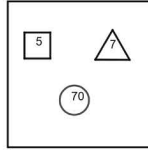
Which one is different?



71. Hangisi farklıdır?

Which one is different?




A)  B)  C) 



D)  E) 

72. $\Lambda\Sigma\Lambda = \Sigma\P\Sigma\P$ $\Pi\Sigma = \Pi\P\P \Rightarrow \Lambda\P = ?$ A) $\Sigma\Lambda\P$ B) $\Lambda\Lambda\Sigma$ C) $\Sigma\P$ D) $\Lambda\P$ E) $\Sigma\Sigma\P$


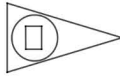
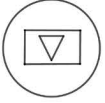
73.








A)  B)  C) 

D)  E) 

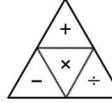
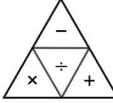
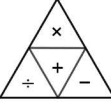
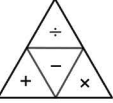
74.

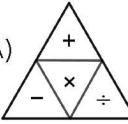
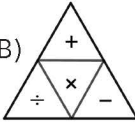
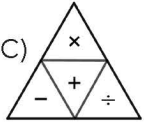
I  II  III  IV ?

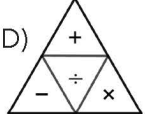
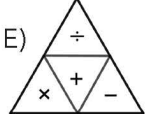
A)  B)  C) 

D)  E) 

75.

I  II  III  IV  V ?

A)  B)  C) 

D)  E) 

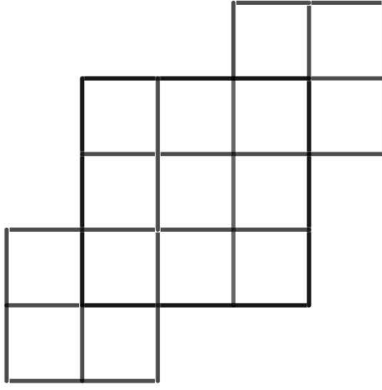
76.

3	5	7	4	4	6	y	6
2	30	3	84	x	72	3	54

 $x + y = ?$

A) 4 B) 6 C) 8 D) 10 E) 12

77.

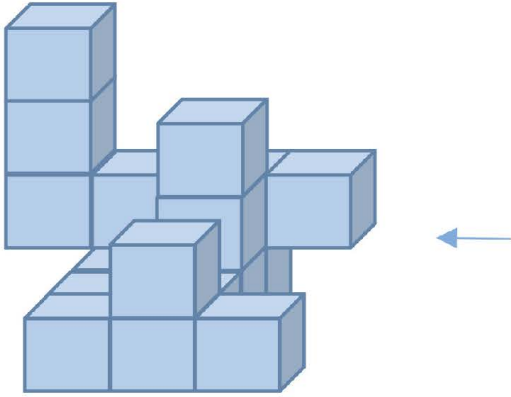


Verilen şekilde kaç tane kare vardır?

How many squares are there in the given figure?

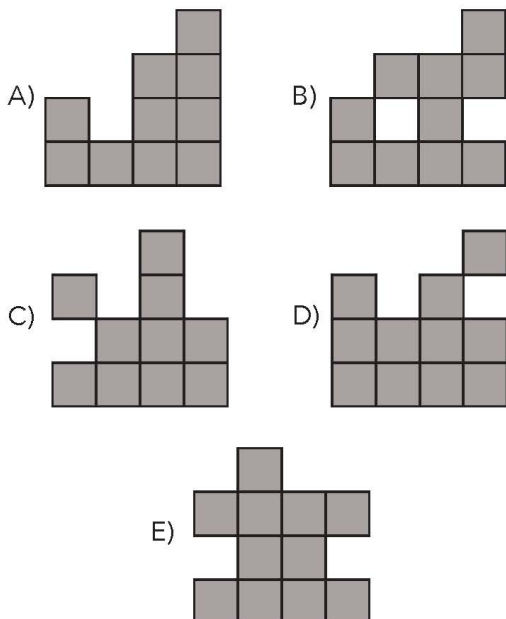
- A) 14 B) 18 C) 22 D) 24 E) 28

78.

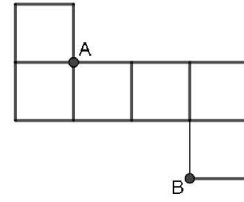


Verilen şekle sağdan bakıldığında, görünen şekil aşağıdakilerden hangisidir?

Looking at the figure given from the right, What is the figure that appears?



79.

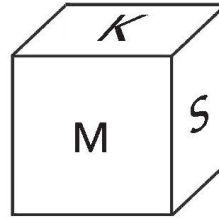


Şekilde birim küpün açılımı verilmiştir. Tekrardan küp haline getirildiğinde A ve B noktaları arasındaki uzaklık kaç birimdir?

An expansion of a unit cube is given in the figure. When by folding back into a cube, what is the distance of A and B?

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

80.



Verilen küpün açılımı aşağıdakilerden hangisidir?

Which one of the following is the expansion of the cube?

