



Lütfen aşağıda sizden istenen bilgileri boş bırakılan yerlere yazınız.  
(Please write the necessary information in the blanks.)

Adı – Soyadı (Name-Surname)		Sınavın Yapıldığı Ülke ve Şehir (Examination Country and City)	
KTÜYÖS Numarası (KTUYOS Number)		Sınav Salonunun Adı (Examination Room Name)	
İmza (Signature)		Sınav Salonu Sıra Numarası (Examination Room Desk Number)	

GENEL AÇIKLAMALAR	GENERAL INSTRUCTIONS
<ol style="list-style-type: none"><li>1) Bu sınav kitapçığında <b>80</b> soru bulunmaktadır. Bu soruları cevaplamak için size verilen toplam süre <b>120 dakikadır</b>.</li><li>2) Bu testteki her sorunun bir tek doğru cevabı vardır. Bir soru için birden çok cevap yeri işaretlenmişse, o soru yanlış cevaplanmış sayılacaktır.</li><li>3) Cevaplarınızı koyu siyah ve yumuşak bir kurşun kalemle size verilen cevap kâğıdına işaretleyiniz. İşaretlerinizi cevap yerinin dışına taşırmayınız. Tükenmez kalem veya dolma kalem kullanmayınız.</li><li>4) Değiştirmek istediğiniz bir cevabı, yumuşak bir silgiyle, cevap kâğıdını örselemeden, temizce siliniz ve yeni cevabınızı işaretlemeyi unutmayınız.</li><li>5) Cevap kâğıdınızı buruşturmayınız, katlamayınız ve üzerine gereksiz hiçbir işaret koymayınız.</li><li>6) İsteddiğiniz sorudan cevaplamaya başlayabilirsiniz. Cevaplarınızı işaretlerken soru kitapçığındaki soru numarası ile cevap kâğıdındaki cevap numarasının aynı olmasına dikkat ediniz.</li><li>7) Bütün soruları cevaplamaya çalışınız. Yanlış cevaplarınızın sayısı doğru cevaplarınızın sayısını etkilemeyecektir.</li><li>8) Sınavın başında <b>KTÜYÖS GİRİŞ BELGENİZİ</b> sınav salon görevlilerine teslim etmeyi unutmayınız.</li><li>9) <b>CEP TELEFONU</b> ile sınava girmek kesinlikle yasaktır. Çağrı cihazı, telsiz, vb. haberleşme araçları ile cep bilgisayar, saat fonksiyonu dışında fonksiyonu bulunan saat vb. her türlü bilgisayar özelliği bulunan cihazlarla ve ayrıca silah vb. teçhizatla, müsvedde kâğıdı, defter, kitap, hesap makinesi, hesap cetveli, pergel, vb. araçlarla da sınava girmek yasaktır. Bu araçlarla sınava girmiş adayların sınavları geçersiz sayılacaktır.</li><li>10) Sınavda uyulacak diğer kurallar bu kitapçığın arka kapağında belirtilmiştir.</li></ol>	<ol style="list-style-type: none"><li>1) This examination booklet has <b>80</b> questions. You have a total of <b>120 minutes</b> to answer the questions.</li><li>2) In this test, there is only one correct answer for each question. If more than one answer choice is marked, this answer will automatically be considered wrong.</li><li>3) Please use a soft black pencil to mark your answers on the answer sheet. Fill in the circle fully for your answer, but make sure not to mark beyond the borders of the circle. Please do not use any kind of pen.</li><li>4) If you wish to change an answer, use a very soft eraser to delete it carefully and completely. Do not forget to mark your new answer.</li><li>5) Please do not fold or wrinkle your answer sheet, and do not write any irrelevant marks on it.</li><li>6) You may answer the questions in any order you like. However, please make sure that the number on the answer sheet corresponds to the number of the question you are working on in the test booklet.</li><li>7) Please try to answer all of the questions on the test. The number of your incorrect answers will not affect the number of your correct answers.</li><li>8) Do not forget to submit and leave your <b>KTUYOS ENTRANCE DOCUMENT</b> with test officials at the beginning of the test.</li><li>9) It is strictly forbidden to bring <b>MOBILE PHONES</b> into the examination hall. Also forbidden is any other kind of electronic or communications equipment (other than watches that only show the time), weapons, explosive materials, scrap paper, notebooks, books, dictionaries and related instruments, slide-rules, compasses, and the like. The examinations of violators of these rules will be considered invalid.</li><li>10) Additional rules concerning the administration of the test are given at the end of the booklet.</li></ol>

**NOT: ONDALIK KESİRLERİ GÖSTERMEK İÇİN TÜRKÇE METİNLERDE VİRGÜL (,) KULLANILIR.**  
(NOTE: DECIMALS ARE INDICATED BY A COMMA (,) IN TURKISH TEXTS.)

# KTÜYÖS

1.

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

- A) 10    B) 12    C) 15    D) 18    E) 20

2.

$$50^2 \cdot \frac{0,01 - 0,001}{225} = ?$$

- A) 0.001    B) 0.1    C) 0.01    D) 10    E) 100

3.

$$\frac{\sqrt{0,16} - (0,4)^2}{\sqrt[3]{0,008} - (0,2)^3} = ?$$

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

4.

$$\left. \begin{array}{l} 2x + y - z = 12 \\ 3x + y - z = -4 \end{array} \right\} \Rightarrow x = ?$$

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

# KTÜYÖS

5.

$$k, n \in \mathbb{Z}^+, \\ \frac{n^2(n-2)!}{(n+1)!} = \frac{7}{k} \Rightarrow k = ?$$

- A) 24    B) 35    C) 48    D) 52    E) 64

6.

$$k \in (-\infty, 2] \\ 4(2x-1) - 3x = kx - 2 \Rightarrow \max\{x\} = ?$$

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

7.

$$\left[ \frac{(x+1)^4 - (x-1)^4}{4x^3 + 4x} \right]^2 = ?$$

- A) 1    B) 4    C) 6    D) 8    E) 10

8.

$$(a, b) \odot (c, d) = (ad - b, bc - d)$$

$$(a, b) \boxtimes (c, d) = (ac + bd, ad - bc)$$

$$\Rightarrow [(2, 3) \odot (1, -1)] \boxtimes (0, -4) = ?$$

- A) (9,4)    B) (-7,3)    C) (8,-2)    D) (3,6)    E) (-16,20)

# KTÜYÖS

9.

$$a - b = 4 \Rightarrow \frac{(a + b)^2 - ab}{a^3 - b^3} = ?$$

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

10.

$$\left. \begin{array}{l} \frac{x}{y} = \frac{2}{7} \\ \frac{x}{z} = \frac{6}{11} \end{array} \right\} \Rightarrow \frac{y}{z} = ?$$

- A)  $\frac{1}{11}$       B)  $\frac{3}{11}$       C)  $\frac{17}{11}$       D)  $\frac{21}{11}$       E)  $\frac{29}{11}$

11.

$$\begin{array}{r} KLM \\ LKM \\ + MLK \\ \hline 1K2K \end{array} \Rightarrow K+L+M=?$$

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

12.

$$\left. \begin{array}{l} f(x) = x^2 - 8x + a \\ f(c) = f(d) = 0 \\ \frac{1}{c} + \frac{1}{d} = \frac{2}{3} \end{array} \right\} \Rightarrow a = ?$$

- A) 8      B) 10      C) 12      D) 14      E) 16

# KTÜYÖS

13.

$$\left. \begin{array}{l} x, y, z \in \mathbb{Z}^+ \\ x^2 \cdot y \cdot z = 5^5 \\ x \cdot y^2 \cdot z^3 = 5^4 \end{array} \right\} \Rightarrow x + y + z = ?$$

A) 31    B) 61    C) 81    D) 121    E) 131

14.

$$a < 0 < b \Rightarrow \frac{|b-a|}{|b+|a||} = ?$$

A)  $a$     B)  $b-a$     C)  $|b+a|$     D)  $a-2b$     E) 1

15.

$$\left. \begin{array}{l} a - b = 3 \\ ac + b = 18 \\ bc + a = 6 \end{array} \right\} \Rightarrow c = ?$$

A) 5    B) 6    C) 7    D) 8    E) 9

16.

$$n \in \mathbb{Z}^+, a > 1$$

$$A_n = \{x \in \mathbb{R} \mid (-1)^n \cdot n < x < n \cdot a\}$$

$$A_2 \cap A_3 = (2,5)$$

$$\Rightarrow A_6 = ?$$

A) (6,15)    B) (6,18)    C) (-6,10)

D) (-6,12)    E) (-6,20)

# KTÜYÖS

17.

$$\left. \begin{array}{l} P(x) = ax + b \\ Q(x) = cx + \frac{b}{3} \\ P(x) = Q(x) \cdot B(x) + 18 \\ 5a = 9c \end{array} \right\} \Rightarrow b = ?$$

- A) 15      B) 25      C) 45      D) 60      E) 70

18.

$$f: \mathbb{R} \rightarrow \mathbb{R}$$

$$f(x) = \begin{cases} x^2 - 4, & x < a \\ bx - 8, & a \leq x < b + 2 \\ (x - 2)^2, & b + 2 \leq x \end{cases}$$

$$\forall x \in \mathbb{R}, \lim_{x \rightarrow c} f(x) = f(c) \Rightarrow \left| \frac{2a + 3}{2b} \right| = ?$$

- A)  $\frac{1}{4}$       B)  $\frac{7}{2}$       C)  $\frac{3}{7}$       D)  $\frac{7}{8}$       E)  $\frac{3}{8}$

19.

$$2\sin^2 x + \cos^2 x = \frac{6}{5} \Rightarrow \cos 2x = ?$$

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

20.

$$x \in \left(0, \frac{\pi}{4}\right)$$

$$a = \sin x$$

$$b = \cos x$$

$$c = \cot x$$

Yukarıda verilenlere göre, aşağıdakilerden hangisi doğrudur?

Which of the following is correct according to given above?

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

# KTÜYÖS

21.

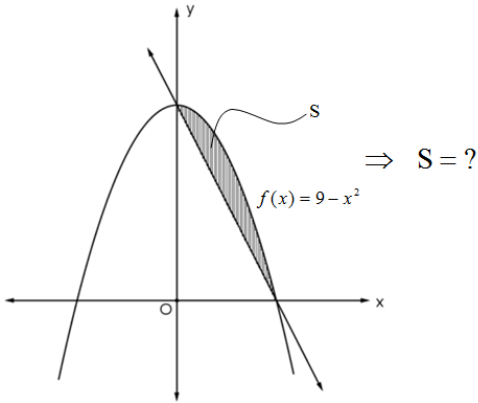
$f: \mathbb{R} \rightarrow \mathbb{R}$  sürekli fonksiyon olmak üzere,

Let  $f: \mathbb{R} \rightarrow \mathbb{R}$  be a continuous function.

$$\left. \begin{aligned} \int_0^3 (1 + f(x))f'(x) dx &= 8 \\ f(0) &= -1 \end{aligned} \right\} \Rightarrow \max\{f(3)\} = ?$$

- A) -4    B) -1    C) 0    D) 3    E) 6

22.



Yukarıdaki şekle göre, boyalı bölgenin alanı kaçtır?

What is the area of the shaded region according to the figure above?

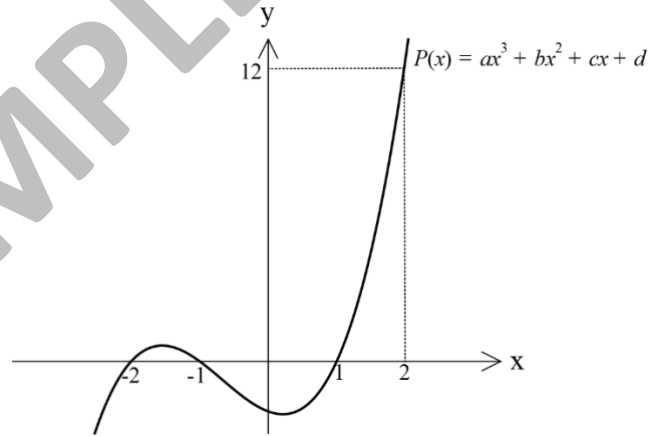
- A)  $\frac{19}{3}$     B)  $\frac{9}{2}$     C)  $\frac{15}{4}$     D) 4    E) 6

23.

$$\log_3 5 = x \Rightarrow \log_9 45 = ?$$

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

24.



$$\frac{d^2P}{dx^2}(1) = P''(1) = ?$$

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

# KTÜYÖS

25.

$$f(x) = \begin{cases} mx + 4, & x > 1 \\ x^2 + 2m, & x < 1 \end{cases}$$

$f(x)$  fonksiyonunun  $x=1$  noktasında limiti olduğuna göre  $m$  kaçtır?

According to the function  $f(x)$  has a limit at the point  $x=1$ , what is the value of  $m$ ?

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

26.

$$\left. \begin{array}{l} z, w \in \mathbb{C}, \\ z - w = 3 - 6i \\ \overline{z + \overline{w}} = 7 + 6i \end{array} \right\} \Rightarrow \operatorname{Re}(z) = ?$$

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

27.

$$\begin{bmatrix} 1 & a \\ 3 & 4 \end{bmatrix} \begin{bmatrix} -3 & 2 & 1 \\ b & 0 & -1 \end{bmatrix} = \begin{bmatrix} 1 & 2 & -1 \\ -1 & 6 & -1 \end{bmatrix}$$

$$a + b = ?$$

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



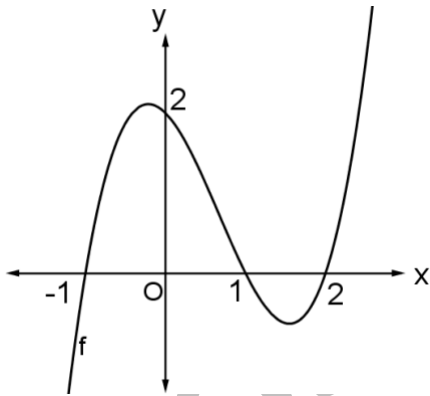
# KTÜYÖS

28.

$$\lim_{x \rightarrow -\infty} (3^{\frac{1}{x}} + 2^x + 5) = ?$$

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

29.



$$f(1) + (f \circ f)(2) = ?$$

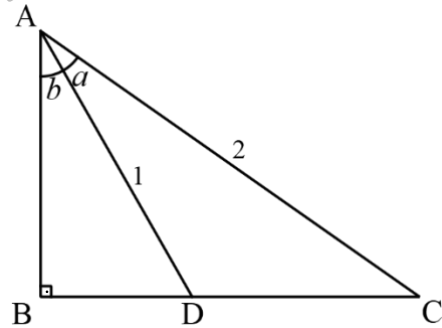
- A) 4      B) 3      C) 2      D) 1      E) 0

30.

$$f(x) = (x-1)^3 \cdot (2x-t) \text{ ve } f'(0) = 4 \Rightarrow t = ?$$

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

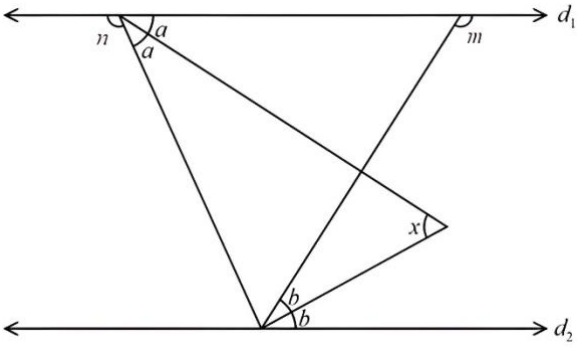
31.



$$\frac{\cos(a+b)}{\cos(b)} = ?$$

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

32.



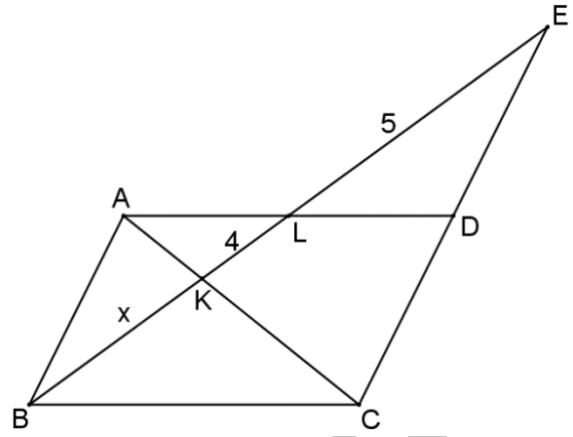
$$d_1 // d_2$$

$$m + n = 220^\circ$$

$$x = ?$$

- A) 45    B) 55    C) 60    D) 70    E) 95

33.



$$[AB] // [CD]$$

$$[AD] // [BC]$$

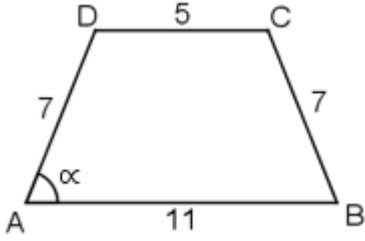
$$|KL| = 4 \text{ cm}$$

$$|LE| = 5 \text{ cm} \Rightarrow |BK| = x = ?$$

- A)  $4\sqrt{2}$     B) 6    C)  $4\sqrt{5}$     D) 9    E) 12

# KTÜYÖS

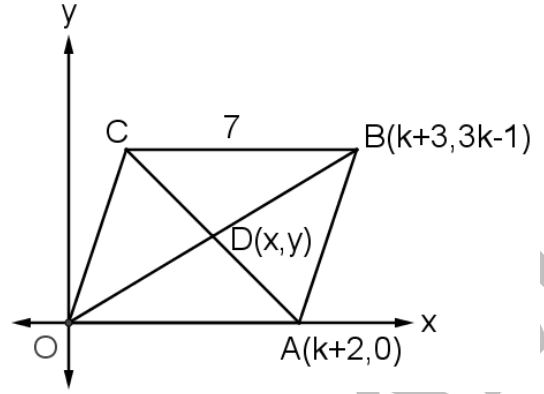
34.



$[DC] \parallel [AB]$   
 $|CD| = 5 \text{ cm}$   
 $|AB| = 11 \text{ cm}$   
 $|BC| = |AD| = 7 \text{ cm}$   
 $\cos \alpha = ?$

- A) 1    B)  $\frac{1}{4}$     C)  $\frac{1}{2}$     D)  $\frac{3}{7}$     E) 2

35.

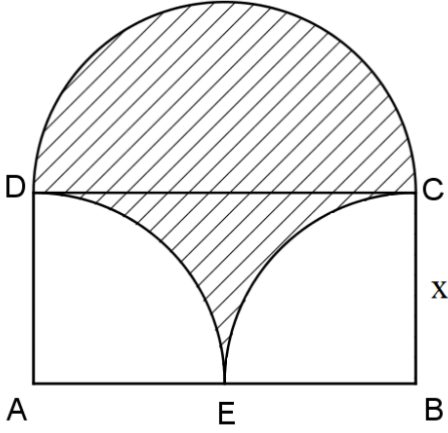


**OABC bir paralelkenar**  
OABC is a parallelogram  
 $[AC] \cap [OB] = \{D\}$   
 $A(k+2,0)$   
 $B(k+3,3k-1)$   
 $|BC| = 7 \text{ cm}$   
 $D(x,y) = ?$

- A) (3,5)    B) (2,6)    C) (3,8)    D) (4,7)    E) (5,7)

# KTÜYÖS

36.

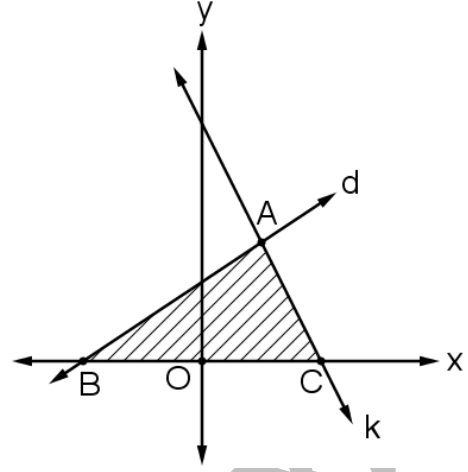


ABCD bir dikdörtgen  
 $\widehat{DE}$  ve  $\widehat{EC}$ , A ve B merkezli çeyrek çemberler  
 $\widehat{DC}$ , E merkezli yarım çember  
 Taralı bölgenin alanı  $50 \text{ cm}^2$  ise  $|BC| = ?$

ABCD is a rectangle  
 $\widehat{DE}$  and  $\widehat{EC}$  are the quarter circles with centered A and B  
 $\widehat{DC}$  is a semi-circle with centered E  
 If the area of the shaded region is  $50 \text{ cm}^2$ , then  $|BC| = ?$

- A) 3      B) 4      C) 5      D) 6      E) 8

37.



$$d: 2x - 3y + 4 = 0$$

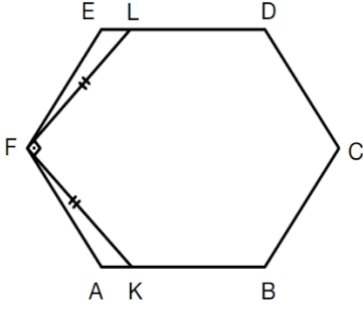
$$k: 2x + y - 4 = 0$$

$$A(ABC) = ?$$

- A) 4      B)  $\frac{9}{2}$       C) 6      D)  $\frac{15}{2}$       E) 8

# KTÜYÖS

38.



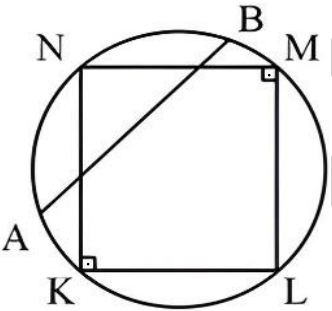
ABCDEF düzgün altıgen

ABCDEF regular hexagon

$$\begin{aligned} [KF] &\perp [FL] \\ |KF| &= |FL| = \sqrt{6} \\ |KB| &=? \end{aligned}$$

- A)  $3 - \sqrt{3}$    B)  $\sqrt{3} - 1$    C)  $\sqrt{3}$    D)  $\frac{3}{2}$    E)  $\frac{\sqrt{3}}{2}$    A) 14   B) 16   C) 18   D) 20   E) 23

39.

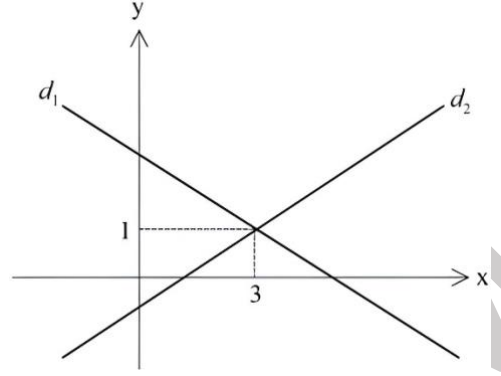


KLMN kare  
KLMN square

$$\begin{aligned} m(\widehat{AB}) &= 120^\circ \\ |AB| &= 3 \\ |KL| &=? \end{aligned}$$

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

40.



$$d_1: x + ay = b + 3$$

$$d_2: x - (b - 1)y = b - 2$$

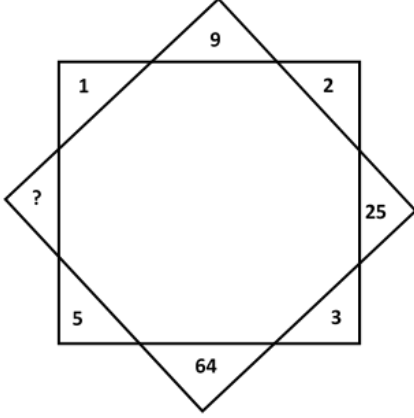
$$\Rightarrow b^a - a \cdot b = ?$$

# KTÜYÖS

41.

Soru işareti ile gösterilen sayıyı bulunuz.

Find the number shown by the question mark.

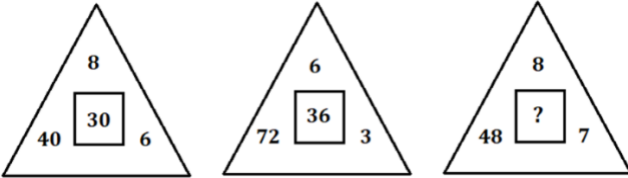


- A) 4      B) 9      C) 16      D) 25      E) 36

42.

Soru işareti ile gösterilen sayıyı bulunuz.

Find the number shown by the question mark.

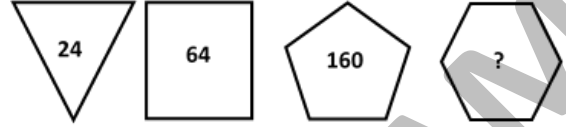


- A) 60      B) 42      C) 30      D) 24      E) 20

43.

Soru işareti ile gösterilen sayıyı bulunuz.

Find the number shown by the question mark.



- A) 384      B) 400      C) 360      D) 420      E) 256

44.

Soru işareti ile gösterilen sayıyı bulunuz.

Find the number shown by the question mark.

27	25
36	9
94	25
71	?
53	4

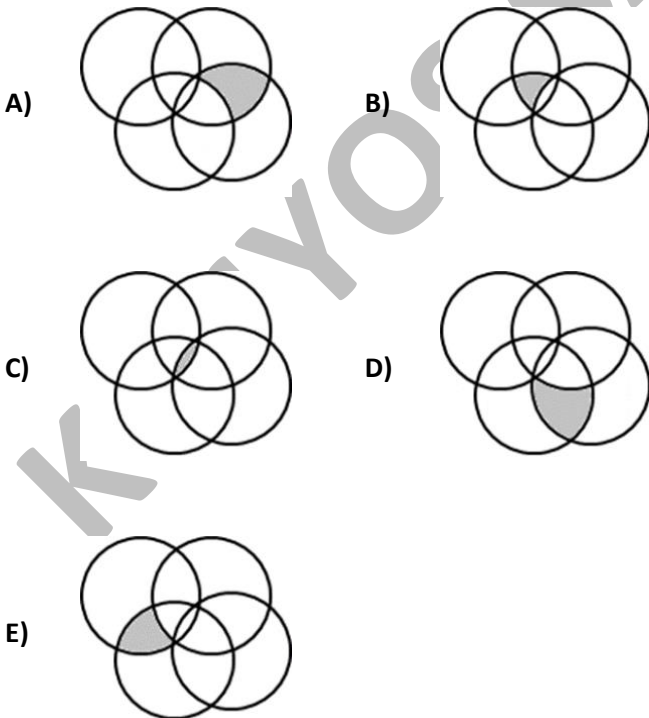
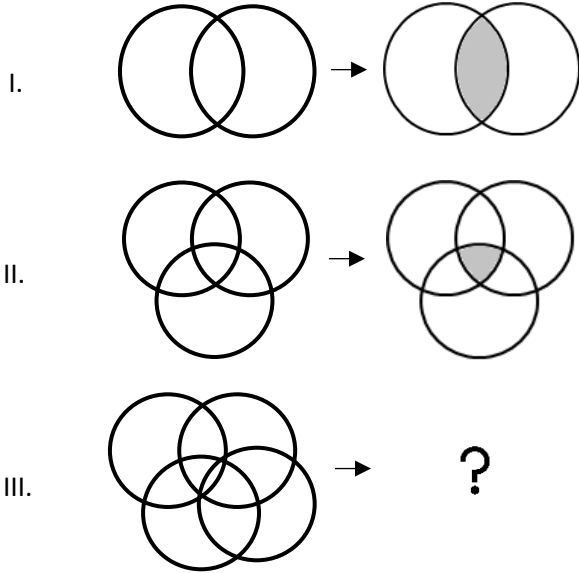
- A) 4      B) 8      C) 25      D) 36      E) 52

# KTÜYÖS

45.

Soru işareti ile gösterilen şekli bulunuz.

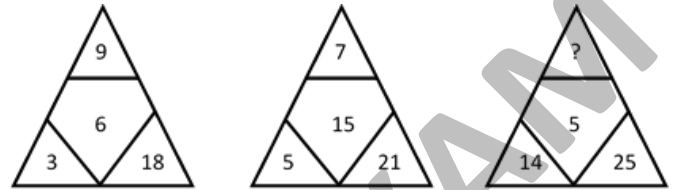
Find the figure shown by the question mark.



46.

Soru işareti ile gösterilen sayıyı bulunuz.

Find the number shown by the question mark.



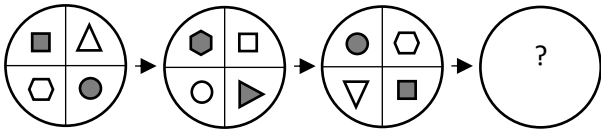
- A) 30      B) 45      C) 55      D) 70      E) 80

# KTÜYÖS

47.

Soru işareti ile gösterilen şekli bulunuz.

Find the figure shown by the question mark.

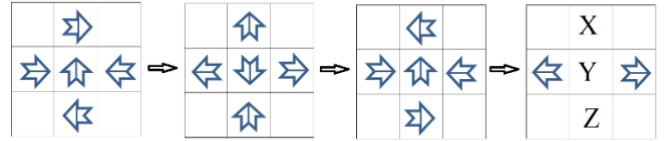


- A) B)
- C) D)
- E)

48.

Soru işareti ile gösterilen şekli bulunuz.

Find the figure shown by the question mark.



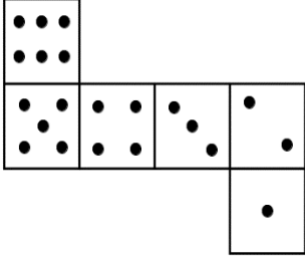
X=?

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



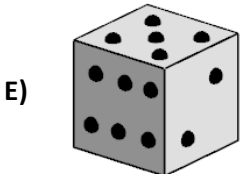
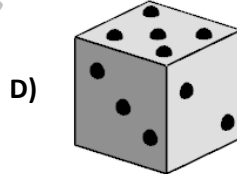
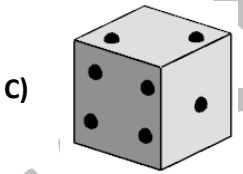
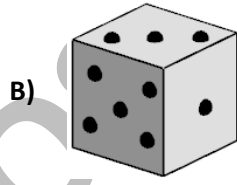
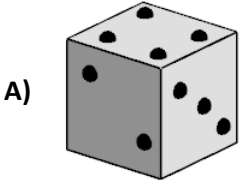
# KTÜYÖS

49.



Yukarıda verilen şeklin katlanmasıyla aşağıdaki küplerden hangisi oluşturulabilir?

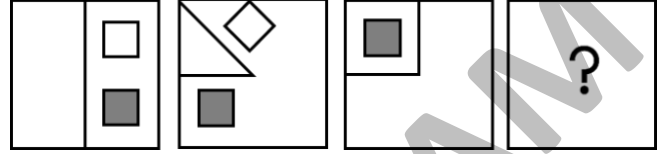
Which of the following cubes can be created by folding the given figure above?



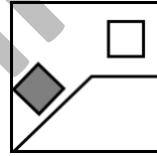
50.

Soru işareti ile gösterilen şekli bulunuz.

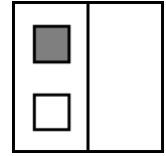
Find the figure shown by the question mark.



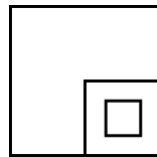
A)



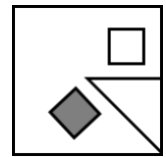
B)



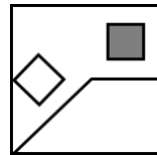
C)



D)



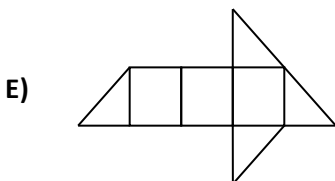
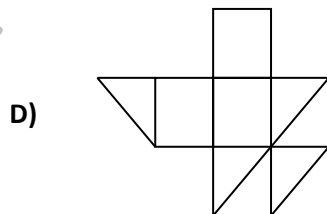
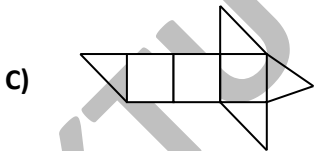
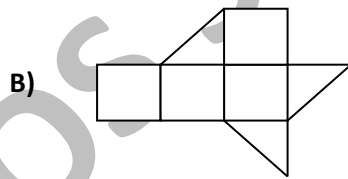
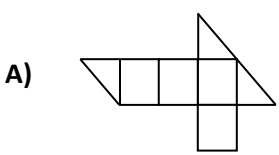
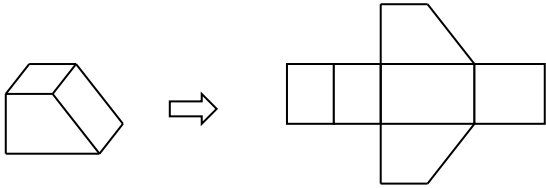
E)



51.

Soru işareti ile gösterilen şekli bulunuz.

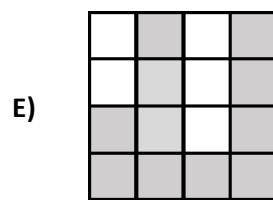
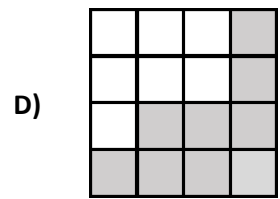
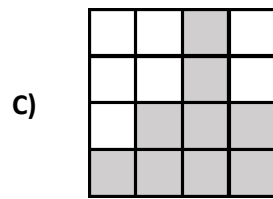
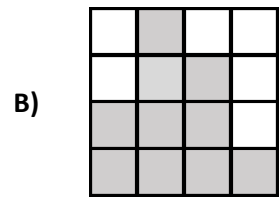
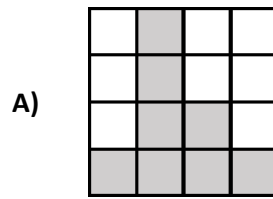
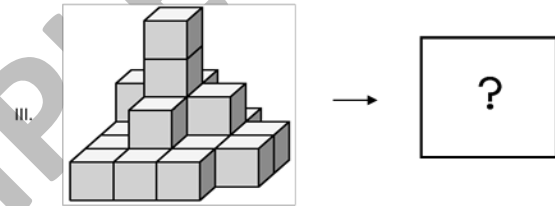
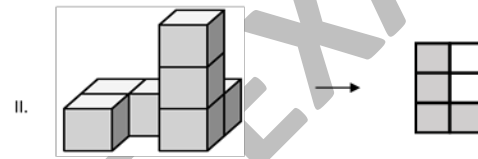
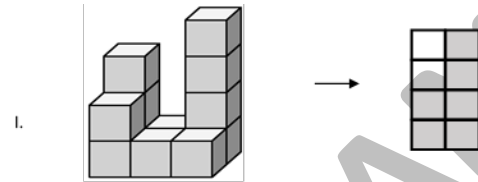
Find the figure shown by the question mark.



52.

Soru işareti ile gösterilen şekli bulunuz.

Find the figure shown by the question mark.

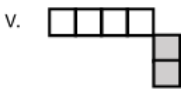
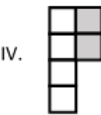
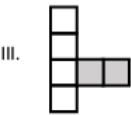
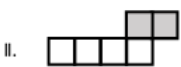
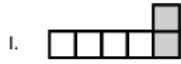


# KTÜYÖS

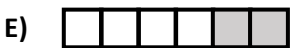
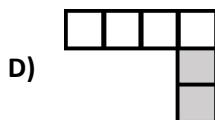
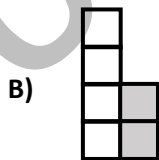
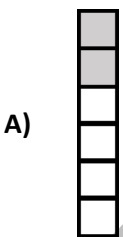
53.

Soru işareti ile gösterilen şekli bulunuz.

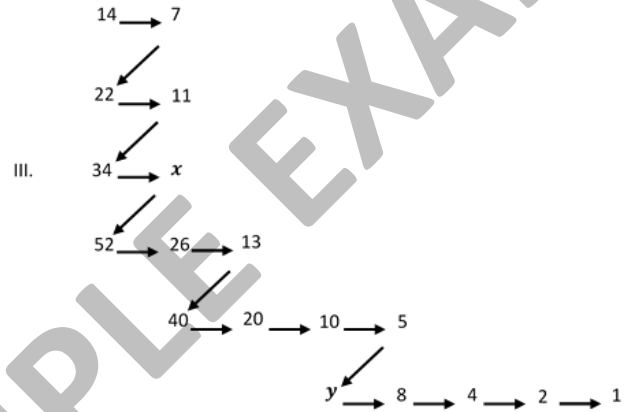
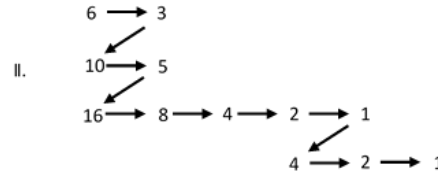
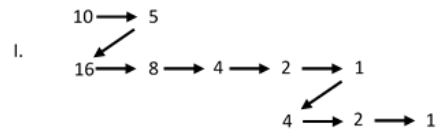
Find the figure shown by the question mark.



VI. ?



54.



$$\Rightarrow x + y = ?$$

A) 33

B) 26

C) 19

D) 17

E) 12

# KTÜYÖS

55.

Aşağıdaki şekilde sayılar bir kurala göre yazılmıştır.

The numbers in the figure below are written according to a rule.

- I. 

	7	6	5
--	---	---	---
- II. 

10			7	
----	--	--	---	--
- III. 

	11		9	8	
--	----	--	---	---	--
- IV. 

$a$			$b$		$c$	
-----	--	--	-----	--	-----	--

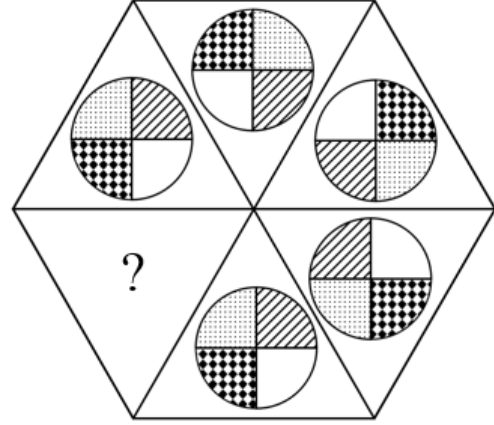
$$\Rightarrow a + b + c = ?$$

- A) 31      B) 34      C) 37      D) 40      E) 43

56.

Soru işareti ile gösterilen şekli bulunuz.

Find the figure shown by the question mark.

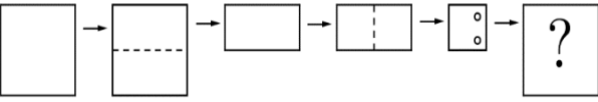
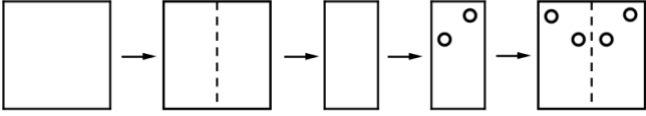


- A)
- B)
- C)
- D)
- E)

57.

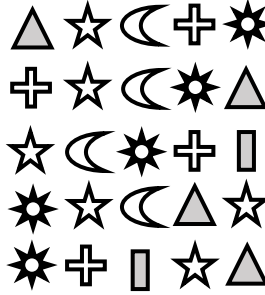
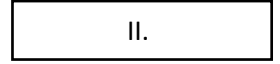
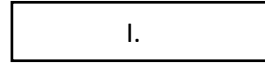
Soru işareti ile gösterilen şekli bulunuz.

Find the figure shown by the question mark.



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

58.



24073

75240

47523

37542

27537

I. gruptaki şekiller birer rakam ile gösterilerek II. gruptaki sayılar elde edilmiştir. Buna göre,  $\star \square \star \oplus \triangle = ?$

The numbers in group II stand for the set of figures in group I when each figure has been coded with a specific numeral.

Accordingly,  $\star \square \star \oplus \triangle = ?$

- A) 20243    B) 34350    C) 75734    D) 52503    E) 47420

# KTÜYÖS

59.

4	9	5	
7	3		8
	3	8	
2		5	$x$

Yukarıdaki tabloda her bir satırdaki ve her bir sütundaki sayıların toplamı eşittir. Buna göre  $x = ?$

The sum of the numbers in each row and each column in the above table is equal. Then,  $x = ?$

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

60.

$3^1 + 2^2 + 1^3 = 8$

$?$

- A) 23      B) 25      C) 28      D) 30      E) 32

61.

Soru işareti ile gösterilen şekli bulunuz.

Find the figure shown by the question mark.

$90 =$

$45 =$

$180 = ?$

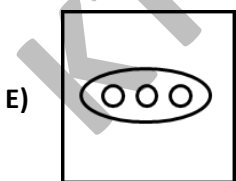
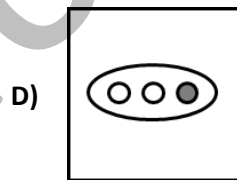
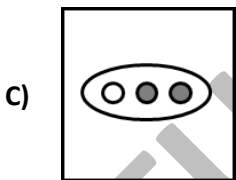
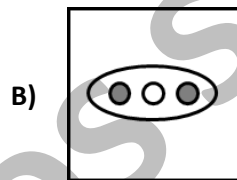
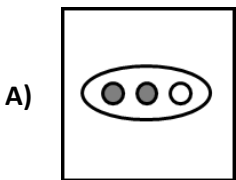
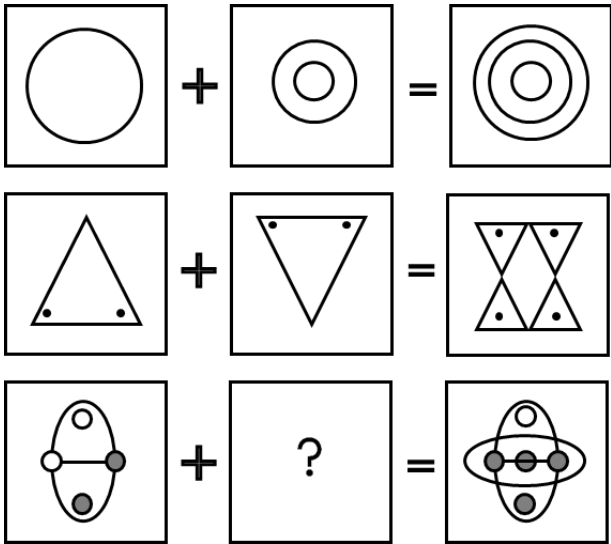
- A)
- B)
- C)
- D)
- E)

# KTÜYÖS

62.

Soru işareti ile gösterilen şekli bulunuz.

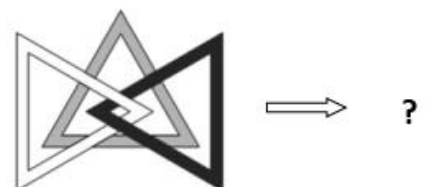
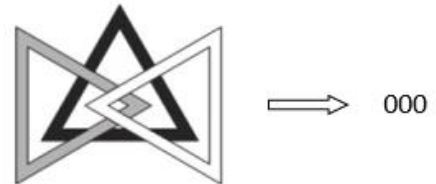
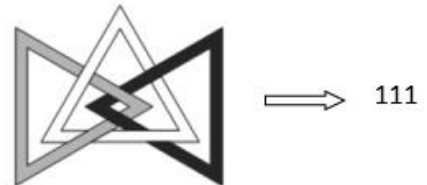
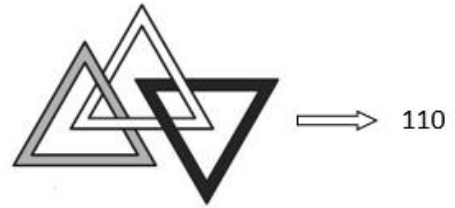
Find the figure shown by the question mark.



63.

Soru işareti ile gösterilen şekli bulunuz.

Find the figure shown by the question mark.



A) 110

B) 011

C) 101

D) 111

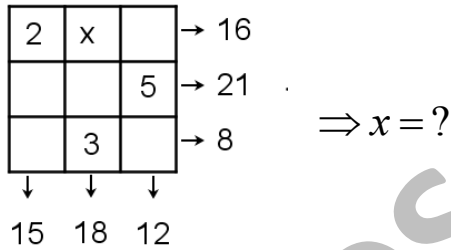
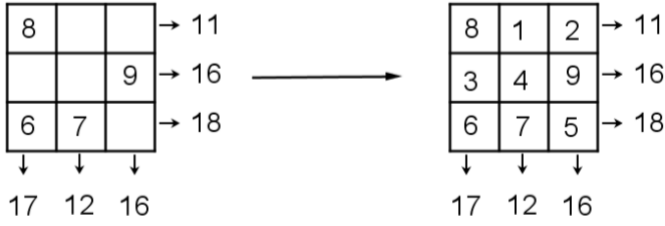
E) 010

# KTÜYÖS

64.

Karelerin içine sadece 1, 2, 3, 4, 5, 6, 7, 8, 9 rakamları yalnızca bir kez yerleştirilerek aşağıdaki tablo dolduruluyor.

The following table is filled by placing the numbers 1, 2, 3, 4, 5, 6, 7, 8, and 9 only once inside the squares.



- A) 4      B) 6      C) 7      D) 8      E) 9

65.

$$1 \rightarrow 3 \rightarrow 9 \rightarrow 11 \rightarrow 33 \rightarrow 35 \rightarrow 105 \dots$$

$$a_1 \quad a_2 \quad a_3 \quad a_4$$

$$a_9 = ?$$

- A) 152      B) 190      C) 291      D) 321      E) 413

66.

$$X = 10001001100210031004 \dots 10101011 \dots 1015$$

↓

$$S(X) = 1+0+0+0+1+0+0+1+1+0+0+2+\dots+1+0+1+5=82$$

$$Y = 10001001100210031004 \dots 10101011 \dots 1030$$

↓

$$S(Y) = ?$$

- A) 190      B) 192      C) 194  
D) 197      E) 199



# KTÜYÖS

67-68. soruları aşağıda verilen bilgilere göre cevaplayınız.

Answer the questions 67 and 68 according to the information given below.

$$a, b, c \in \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$$

$$a \neq b \neq c, a \neq 0$$

$$f(abc) = (a \times b) + ac + c$$

Örnek/Example:

$$f(245) = (2 \times 4) + 25 + 5 = 38$$

67.

$$f(342) = ?$$

A) 46

B) 44

C) 42

D) 40

E) 38

68.

$$f(abc) = 17 \Rightarrow a + b + c = ?$$

A) 6

B) 7

C) 8

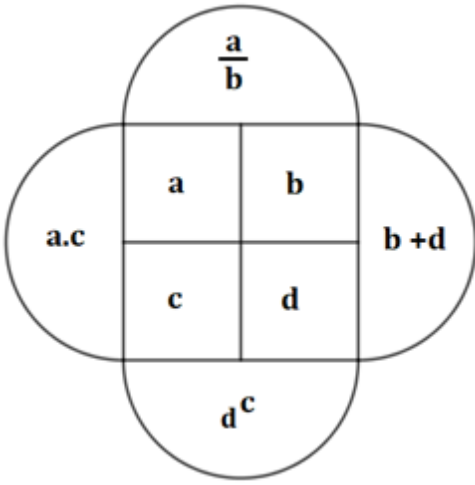
D) 9

E) 10

# KTÜYÖS

69-70. soruları aşağıda verilen bilgilere göre cevaplayınız.

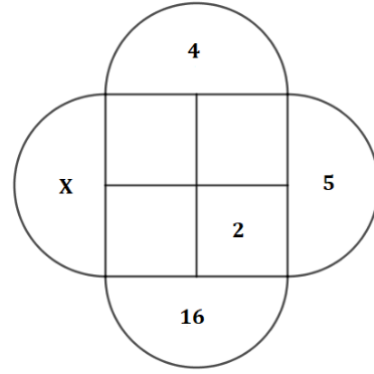
Answer the questions 69 and 70 according to the information given below.



Yukarıdaki şekil a, b, c ve d harfleri ile gösterilen dört tam sayıyı içeren bazı işlemlere göre düzenlenmiştir.

The figure above has been organized according to some operations including four whole numbers shown with the letters a, b, c, d.

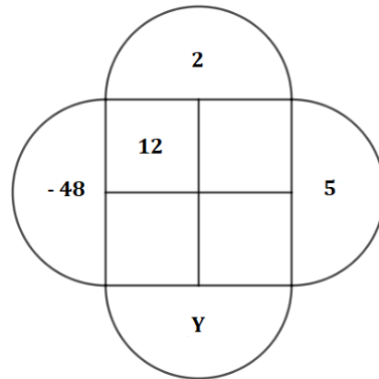
69.



$\Rightarrow X=?$

- A) 24      B) 36      C) 40      D) 48      E) 60

70.



$\Rightarrow Y=?$

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

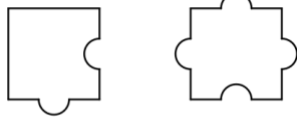
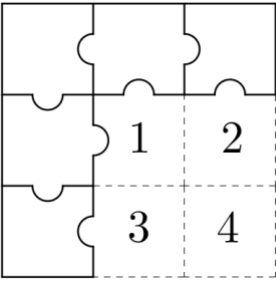
# KTÜYÖS

71-72. soruları aşağıda verilen bilgilere göre cevaplayınız.

**Answer the questions 71 and 72 according to the information given below.**

Şekildeki yapbozun 4 parçası eksiktir. Bu parçalardan ikisi şeklin sağ tarafında verilmiştir.

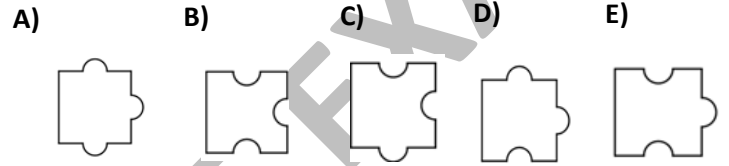
**The four pieces of the puzzle in the figure are missing. Two of these pieces have been given on the right side of the figure.**



71.

Şekildeki iki parça yerine yerleştirildiğinde, 2 numaralı parça aşağıdakilerden hangisidir?

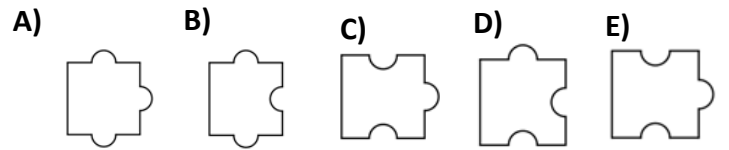
**When the two pieces on the right side of the figure are correctly placed, which of the following is the piece of the numbered 2?**



72.

Şekildeki iki parça yerine yerleştirildiğinde, 3 numaralı parça aşağıdakilerden hangisidir?

**When the two pieces on the right side of the figure are correctly placed, which of the following is the piece of the numbered 3?**



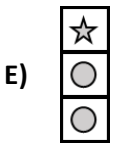
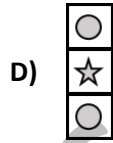
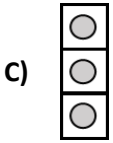
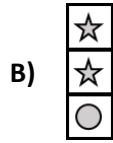
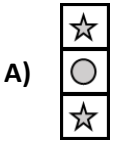
# KTÜYÖS

73.

Soru işareti ile gösterilen şekli bulunuz.

Find the figure shown by the question mark.

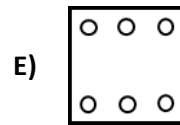
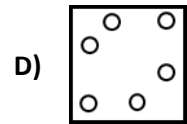
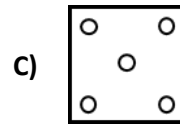
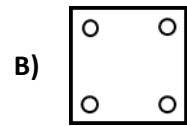
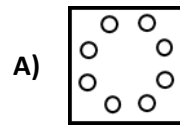
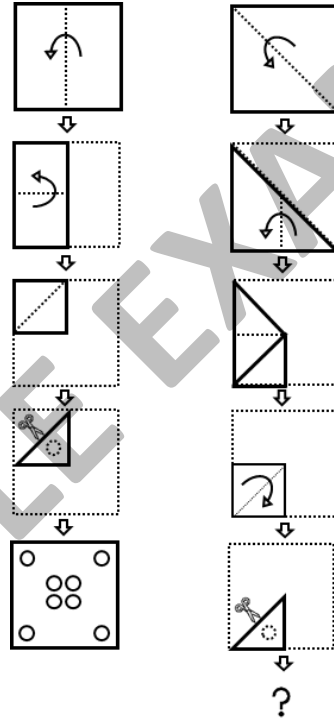
1	2	3	4	5	6	7	8	9	10	...	30
☆	☆	○	☆	☆	○	☆	☆	○			
○	☆	○	☆	○	☆	○	☆	○			?
☆	○	○	○	☆	○	○	○	☆			



74.

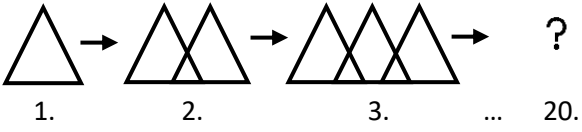
Soru işareti ile gösterilen şekli bulunuz.

Find the figure shown by the question mark.



# KTÜYÖS

75.



20. şekilde kaç tane üçgen vardır?

How many triangles are there in the 20<sup>th</sup> figure?






- A) 23      B) 29      C) 33      D) 39      E) 43

76.

Soru işareti ile gösterilen şekli bulunuz.

Find the figure shown by the question mark.



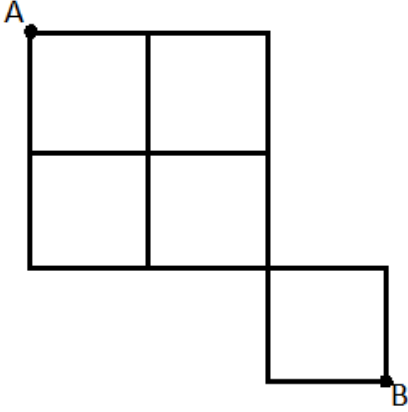
- A)       B) 
- C)       D) 
- E) 

# KTÜYÖS

77.

Aşağıdaki şekilde A noktasından B noktasına çizgiler üzerinden hareket ederek en kısa yoldan kaç farklı şekilde gidilebilir?

How many different ways are possible to travel the shortest path from point A to point B through the lines in the grid below?

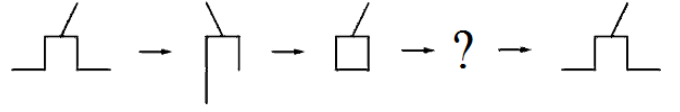


- A) 10    B) 12    C) 14    D) 16    E) 18

78.

Soru işareti ile gösterilen şekli bulunuz.

Find the figure shown by the question mark.



A)



B)



C)



D)



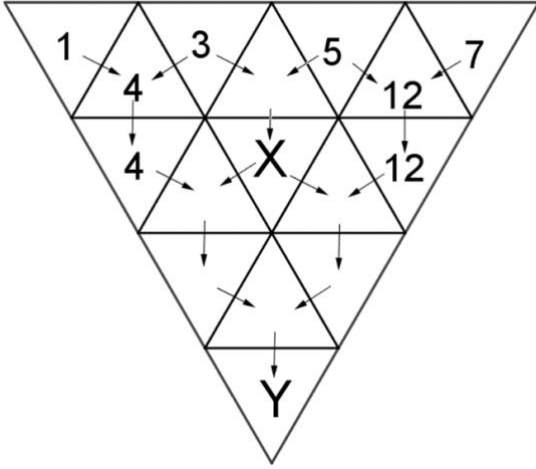
E)



# KTÜYÖS

79-80. soruları aşağıda verilen bilgilere göre cevaplayınız.

Answer the questions 79 and 80 according to the information given below.



79.

$$X = ?$$

A) 2

B) 6

C) 8

D) 9

E) 10

80.

$$\frac{Y}{X} = ?$$

A) 4

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

C) 5

D) 8

E) 12



SINAV KURALLARI	EXAMINATION RULES
<ol style="list-style-type: none"><li>1) Soru kâğıtlarını alır almaz, soruların eksik olup olmadığını, basım hatalarının bulunup bulunmadığını kontrol ediniz ve eksik veya basımı hatalı ise değiştirilmesi için derhal sınav görevlilerine başvurunuz.</li><li>2) Soruları cevaplamaya geçmeden önce soru kâğıtlarında ayrılan yere kimlik bilgileriniz ile sınav bilgilerinizi mutlaka yazınız.</li><li>3) Sınavın başlamasını izleyen <b>İLK 15 DAKİKA</b> içerisinde sınav salonunu terk etmenize izin verilmeyecektir. Sınav salonundan dışarı çıkanlar tekrar sınav salonuna alınmayacaklardır.</li><li>4) Adayların sınavda yanlarında her türlü ses ve görüntü kayıt etmeye yarayan araçlar (<b>CEP TELEFONU, telsiz, çağrı cihazı vb. iletişim araçları ile görüntü kaydetmeye yarayan fotoğraf makinesi, kamera</b>) ve hesap makinesi bulundurmaları kesinlikle yasaktır.</li><li>5) Cevapların "<b>Cevap Kâğıdına</b>" işaretlenmiş olması gerekmektedir. Soru Kitapçığına işaretlenen cevaplar geçersiz sayılacaktır.</li><li>6) Sınav süresince adayların konuşmaları, kopya çekmeleri ve kopya vermeleri sınav kurallarına aykırıdır. Böyle davrandığı herhangi bir yolla belirlenen adayların sınavları geçersiz sayılacaktır.</li><li>7) Sınav sonunda her aday, kullandığı soru kitapçığını ve cevap kâğıdını salon görevlilerine teslim edecektir. <b>Soru kitapçığı ve cevap kâğıdını teslim etmeyen adayların sınavları geçersiz sayılacaktır.</b></li><li>8) Sınav kurallarına uymayan veya sınav sonunda sınav kitapçığını ve cevap kâğıdını teslim etmeyen adayların sınavları geçersiz sayılacak ve adayların cevap kâğıdı değerlendirmeye alınmayacaktır. Ayrıca, bu adaylar için <b>Sınav Sonuç Belgesi düzenlenmeyecektir.</b></li></ol>	<ol style="list-style-type: none"><li>1) As soon as you receive your test booklet and answer sheet, please check to ensure that there are no questions or pages missing and that no typesetting errors are present. If you notice anything missing or a typesetting issue with your documents, please consult with test officials immediately to have them changed.</li><li>2) Before starting to answer the questions, please make sure to write your demographic information and exam details in the appropriate places on the answer sheet.</li><li>3) After <b>the first 15 minutes</b> of the exam, you will not be allowed to leave the examination room. If you leave the examination room, you will not be allowed to reenter.</li><li>4) It is strictly forbidden for candidates to bring any kind of electronic devices with voice and photo recording capabilities (Cellular/Mobile phones, walkie-talkies, digital cameras, calculators, etc.) into the examination room.</li><li>5) All of the answers must be marked on the answer sheet. Those answers marked in the test booklet will be considered invalid.</li><li>6) Talking to others and cheating during the exam are against the exam rules. The examination results of those who have been found in violation of this rule will be considered invalid.</li><li>7) All candidates must return their examination booklets and answer sheets to the examination officials at the end of the exam.</li><li>8) The examination results of those who do not obey the examination rules and regulations and/or return their answer sheets will be not be taken into consideration or will be considered invalid. Examination Report of results will not be issued for such candidates.</li></ol>