

# 1) Matematik - Geometri

## Matematik

1.

$$\frac{2 - \frac{2}{3} - 3}{\frac{1 - \frac{2}{3}}{4}} = ?$$

A)  $-2$

B)  $-\frac{1}{6}$

C)  $-\frac{4}{3}$

D)  $-10$

E)  $-20$

2.

$$5 : \frac{5}{4} - 2 + 3 \cdot 4 + 3 : \frac{1}{2} = ?$$

A)  $\frac{31}{2}$

B)

$$\frac{3}{2}$$

C)  $\frac{71}{4}$

D) 20

E) 26

3.

$$(0,0015)^3 (6000)^4 = ?$$

A)  $2^6 3^5 5^6$

B)  $2^3 3^5 5^3$

C)  $2^4 3^7 5^3$

D)  $2^4 3^5 5^6$

E)

$$2^8 3^4 5^5$$

4.

$$x + 4 = y$$

$$y + 5 = z$$

$$z + x = 2k$$

$$x + y + z = 21$$

$$k = ?$$

A) -12

B) -6

C)  $\frac{43}{6}$

D) 7

E)  $\frac{51}{7}$

5.

$$\left( \left( \frac{2^{-2}}{(-8)^{-3}} \right)^{-2} \right)^{-1} = ?$$

A)

$$-2^{14}$$

B)  $2^{14}$

C)  $-2^{22}$

D)  $2^{22}$

E)  $2^{10}$

6.

$$0,3 \cdot 10^{-3} + 0,41 \cdot 10^2 = ?$$

A) 0,0413

B) 410,03

C) 0,413

D)

41,0003

E) 410,003

7.

$$x > 0$$

$$x^{-3} = 8$$

$$(1-x)^4 = ?$$

A)  $\frac{1}{16}$ 

B) 64

C)  $\frac{1}{4}$ 

D) 8

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

8.

$$(b + b + b + b)(a \cdot a \cdot a \cdot a) = 16$$

$$b^{1/2} a^2 = ?$$

A)

2

B) 4

C)  $2\sqrt{2}$ 

D) 8

E) 16

9.

$$\left( \begin{array}{c} 1 - \frac{1}{a^2} \\ \frac{1}{a} + 1 \end{array} \right) \left( \begin{array}{c} a^2 \\ 1 - a \end{array} \right) = 2$$

A)  $a+1$ B)  $-a$ 

C)

a

D)  $-a-1$

E)  $\frac{a-1}{a}$

10.

$$\frac{2^5 - 1}{\sqrt[3]{2^5}} = ?$$

A)  $\frac{31 - \sqrt[3]{8}}{8}$

B)  $\frac{2^5 - \sqrt[3]{2}}{4}$

C)  $\frac{31 \sqrt[3]{2}}{4}$

D)  $\frac{2^{16/3} - \sqrt[3]{4}}{8}$

E)  $\frac{2^{15} - 1}{2^5}$

11 .

$$\frac{\frac{0,99}{0,09}}{0,009} : (0,009)^{-1} = ?$$

A)  $1$

B)  $9$

C)  $10$

D)  $11$

E)  $110$

12 .

$$a = 1/36, b = 1/4, c = 1/3$$

$$|a - |b - c|| = ?$$

A)  $-\frac{1}{18}$

B)  $\frac{1}{18}$



C)

$$-\frac{1}{9}$$

D)  $\frac{1}{9}$ E)  $\frac{1}{36}$ 

13.

$$f(x) = x + 1$$

$$f \circ g^{-1}(x) = \frac{2x - 1}{x + 3}$$

$$g(x) = ?$$

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

E)

$$\frac{2x}{x+4}$$

14.

$$f(x) = 2x - 1$$

$$fofofof(x) = ?$$

A)  $13x - 10$

B)  $2x - 1$

C)  $15x - 8$

D)  $16x - 15$

E)  $8x - 4$

15.

$$\frac{\log_8 25}{\log_5 2} = ?$$

A)  $\frac{3}{(\log_2 5)^2}$

B)

$$\frac{3}{2\log_5 2}$$

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

D)  $\frac{2}{3}$

E)  $\frac{2}{3(\log_5 2)^2}$

16.

$$\frac{\log_x 8 \cdot \log_y (1/9)}{\log_y 3 \cdot \log_x (1/2)} = ?$$

A)  $\frac{\log_x 4}{\log_y 3}$

B) 3

C) -4

D) 6

E)

$$(\log_x 2)(\log_y 4)$$

17.

$$P\left(\frac{3x+7}{5}\right) = x^3 - 4x^2 + 2ax - 5$$

$$P(2) = 0$$

$$a = ?$$

A)  $-3$

B)  $-2$

C)  $1$

D)  $2$

E)  $4$

18.

$$f(x) = x^2 - 2mx + 8$$

$$f(x_1) = f(x_2) = 0$$

$$x_1 = x_2^2 \Rightarrow 3x_1 + 2x_2 = ?$$

A)

12

B) 16

C) 18

D) 20

E) 22

19.

$$\lim_{x \rightarrow 0} \frac{5^x - 2^x}{3 \cdot 2^x} = ?$$

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

D)

0

E) 1

20.

$$\lim_{x \rightarrow 0} \frac{x e^{\cos x}}{\sin 2x} = ?$$

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

21.

$$f(x) = 3(\sin^3 3x)^2$$

$$f' \left( \frac{\pi}{18} \right) = ?$$

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A)

$$\frac{9\sqrt{3}}{2}$$

B)  $\frac{27\sqrt{3^5}}{2}$

C)  $\frac{\sqrt{3}}{2^5}$

D)  $\frac{27\sqrt{3}}{32}$

E)  $54\sqrt{3}$

22 .

$$f(x) = \ln\left(\frac{1}{x^3+3}\right) - e^{-x+1}$$
$$f'(0) = ?$$

A)  $1+e$

B)  $\ln 3$

C)  $1$

D)

- e

E) e

23 .

$$\int_1^2 \frac{x}{(x^2 + 2)^3} dx$$

A)  $-\frac{1}{16}$ B)  $\frac{1}{48}$ C)  $\frac{1}{40}$ D)  $\frac{1}{16}$ E)  $\frac{1}{8}$ 

24 .

$$\int x^4 \ln x dx = ?$$

A)



$$\frac{x^5}{5} \ln x - \frac{1}{25} x^5 + c$$

B)  $\frac{x^5}{5} \ln x - \frac{1}{20} x^5 + c$

C)  $\frac{x^3}{3} \ln x - \frac{1}{20} x^4 + c$

D)  $2x \ln x - x^5 + c$

E)  $x^5 \ln x - x \ln x + c$

25.

$$\sum_{n=0}^{17} (3n + p) = ?$$

A)  $459 + 18p$

B)  $462 + 17p$

C)  $54 + p$

D)

$$459 + 17p$$

E)  $462 + 18p$ 

26.

$$i^2 = -1$$

$$(\sqrt{-5})^1 + (\sqrt{-5})^2 + (\sqrt{-5})^3 = ?$$

A)  $\sqrt{5} i$ B)  $1 + 5\sqrt{5} i$ C)  $5 - 5\sqrt{5} i$ D)  $-5 - 4\sqrt{5} i$ E)  $5 + 6\sqrt{5} i$ 

27.

$$z = \sqrt{3} - i \Rightarrow |z^6| = ?$$

A)

$$2^6$$

B)  $(\sqrt{3} + 2)^6$

C)  $\frac{7\pi}{2}$

D)  $\frac{9\pi}{4}$

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

28.

$$\frac{\sin 2x}{1 + \cos 2x} = ?$$

A)  $\sin x$

B)  $\cos x$

C)  $2 \sin x$

D)

$$\sin x \cos x$$

E)  $\tan x$

29.

$$A = \begin{bmatrix} -\sin x & \cos x \\ \cos x & \sin x \end{bmatrix}$$

$$M = \sin 2x$$

$$N = \cos 2x$$

$$A^2 = ?$$

A)  $\begin{bmatrix} N & 0 \\ 1 & 1 \end{bmatrix}$

B)  $\begin{bmatrix} N & 0 \\ 1 & M \end{bmatrix}$

C)  $\begin{bmatrix} N & 0 \\ 0 & M \end{bmatrix}$

D)  $\begin{bmatrix} M & 0 \\ 1 & 1 \end{bmatrix}$

E)  $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

30.

$$\begin{bmatrix} -2 & 0 & 2 & 3 & 1 \\ 1 & 6 & -1 & 0 & 7 \end{bmatrix} \begin{bmatrix} 4 \\ -3 \\ 2 \\ -1 \\ 1 \end{bmatrix} = ?$$

A)  $\begin{bmatrix} -8 & 0 & 4 & -3 & 1 \\ 4 & -18 & -2 & 0 & 7 \end{bmatrix}$

B)  $\begin{bmatrix} -2 \\ 2 \end{bmatrix}$

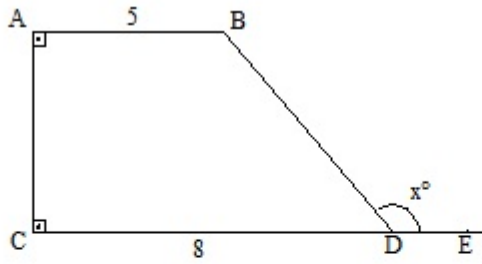
C)  $\begin{bmatrix} -2 & 0 & 4 & -9 & 4 \\ 1 & -6 & -2 & 0 & 4 \end{bmatrix}$

D)  $\begin{bmatrix} -5 \\ 8 \end{bmatrix}$

E)  $\begin{bmatrix} -6 \\ -9 \end{bmatrix}$

## Geometri

1.



ABCD bir yamuktur. ( ABCD is a trapezium )

$$|AB| = 5 \text{ cm} , |CD| = 8 \text{ cm}$$

$$A(ABCD) = \frac{39}{2} \sqrt{3} \text{ cm}^2$$

$$m(\widehat{BDE}) = x^\circ = ?$$

A) 120

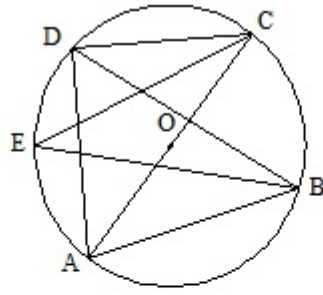
B) 135

C) 150

D) 155

E) 160

2 .



O çemberin merkezidir .  
(O is the center of circle)

$$m(\hat{ADB}) = 70^\circ$$

$$m(\hat{CEB}) + m(\hat{CAB}) = ?$$

A) 20

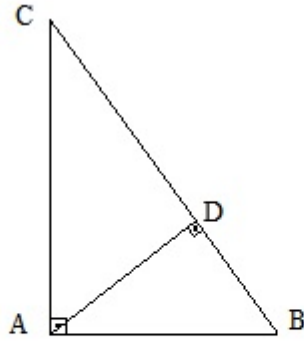
B) 40

C) 60

D) 75

E) 80

3.



ABC bir üçgendir. (ABC is a triangle. )

$$|DB| = 4 \text{ cm}, |AB| = 6 \text{ cm}$$

$$A(\triangle ABC) = ? \text{ cm}^2$$

A) 12

B)  $7\sqrt{5}$

C)  $9\sqrt{5}$

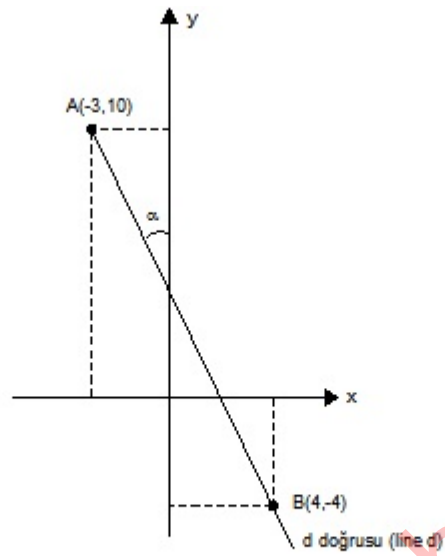
D)  $\frac{7}{2}\sqrt{5}$

E)  $3\sqrt{2}$

4 .



4/6/2019

 $\tan \alpha = ?$ 

A)  $-1$

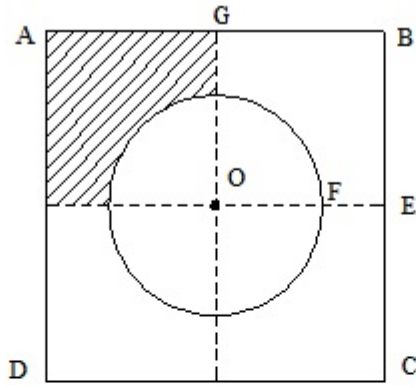
B)  $\frac{2}{3}$

C)  $\frac{1}{2}$

D)  $\frac{3}{4}$

E)  $\frac{3}{5}$

5.



O, çemberin merkezidir

(O is the center of circle)

$|AB| = |BC| = |CD| = |DA| = 12 \text{ cm}$

$|BE| = |EC|, |AG| = |GB|, |FE| = 2 \text{ cm}$

Taralı alan kaç  $\text{cm}^2$  dir?

(What is the shaded area in  $\text{cm}^2$  ?)

A)  $36 - 8\pi$

B)  $4(9 - \pi)$

C)  $144 - 8\pi$

D)  $144 - 32\pi$

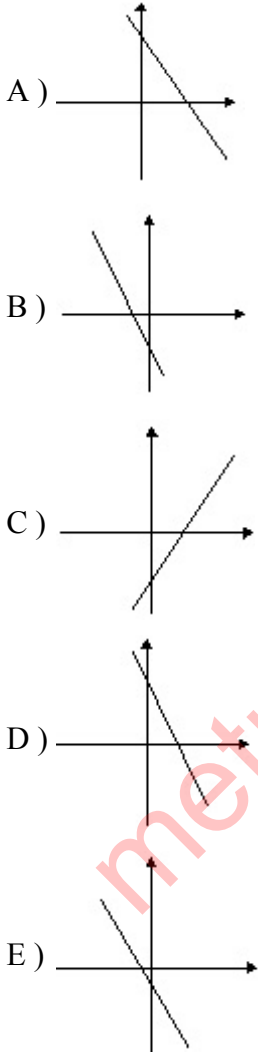
E)  $18 - 4\pi$

## 2) Mantık

### Mantık

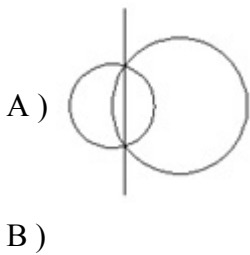
1.

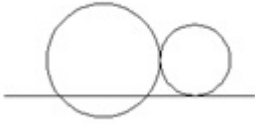
Aşağıdaki şekillerden hangisi belirgin bir özelliği ile diğerlerinden farklıdır?  
Which of following figures is different from others in view of certain property?



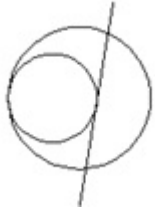
2.

Aşağıdaki şekillerden hangisi belirgin bir özelliği ile diğerlerinden farklıdır?  
Which of following figures is different from others in view of certain property?





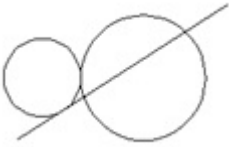
C)



D)



E)



3.

Aşağıdaki şekillerden hangisi belirgin bir özelliği ile diğerlerinden farklıdır?  
Which of following figures is different from others in view of certain property?

A)



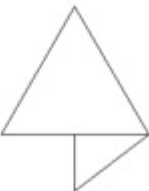
B)

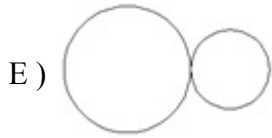


C)



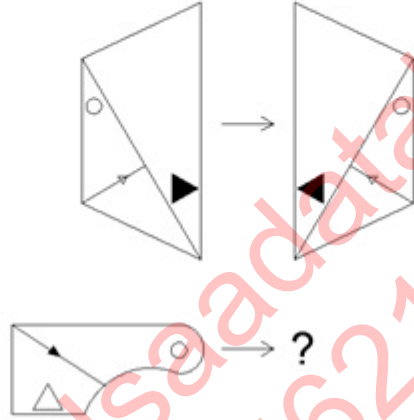
D)





**Belirlenen ilişkiye göre soru işareti yerine  
hangi şeklin geleceğini bulunuz.**  
Find the figure which corresponds to the  
place indicated by the question mark in  
accordance with the relationship established.

4 .



A)



B)



C)



D)

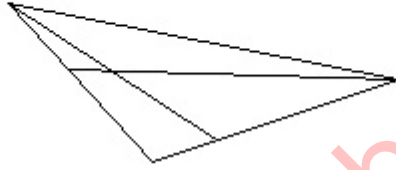


E)



Şekilde kaç üçgen vardır?  
How many triangles are there in the figure?

5.



A) 5

B) 6

C) 8

D) 9

E) 10

6.

$$x = 2 \Rightarrow y = 3 \text{ ve } z = 7$$

$$x = 6 \Rightarrow y = 11 \text{ ve } z = 19$$

$$x = -1 \Rightarrow y = -3 \text{ ve } z = -2$$

**x ile y ve x ile z arasında bir ilişki vardır.**

**Buna göre,**

There is a relationship of x with y and x with

z. So,

$$x = 1 \Rightarrow y + z = ?$$

A) -8

B) -1

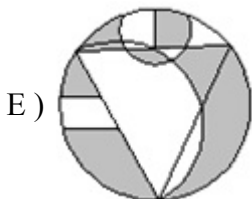
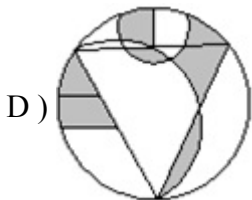
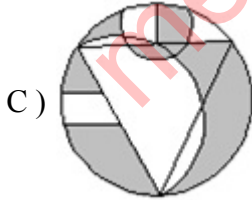
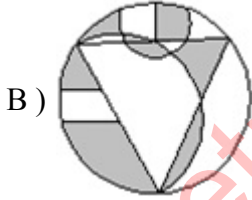
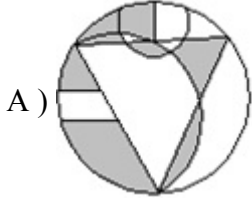
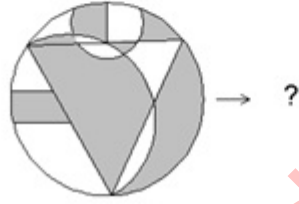
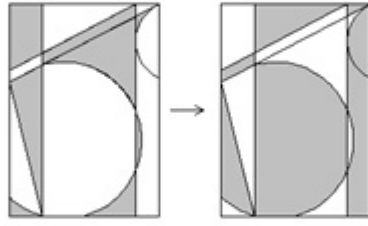
C) 2

D) 5

E) 13

7.

**Belirlenen ilişkiye göre soru işareti yerine  
hangi şeklin geleceğini bulunuz.**  
Find the figure which corresponds to the  
place indicated by the question mark in  
accordance with the relationship established.





3	9	12	2	4
2	7	14	3	6
8	6	7	2	7
5	7	?	3	9

Soru işareti ile belirtilen yere hangi sayının geleceğini bulunuz.

Find the number which corresponds to the place indicated by the question mark.

A) -6

B) -4

C) 5

D) 14

E) 21

metropolsaadatabad  
02188562177  
09332078261  
09371733570

-2 3 3 2 7 7 ? 11 11 10

9.

Soru işareti ile belirtilen yere hangi sayının geleceğini bulunuz.

Find the number which corresponds to the place indicated by the question mark.

A) 6

B)

8

C) 9

D) 10

E) 12

10.

2 7 3 4 14 6 6 21 9 8 ? 12

**Soru işareti ile belirtilen yere hangi sayının geleceğini bulunuz.****Find the number which corresponds to the place indicated by the question mark.**

A) 17

B) 28

C) 39

D)

40

E) 51

11 .

4, 6, 9, 6, 14, 6, ?

A) 6

B) 11

C) 19

D) 21

E) 4

12 .

16	3	5	4
11	2	7	4
1	12	22	3
10	6	?	2

Soru işareti ile belirtilen yere hangi sayının geleceğini bulunuz.  
Find the number which corresponds to the place indicated by the question mark.

A) 7

B) 10

C) 14

D) 17

E) 21

KALENDUR = 95630271

3796610572 = ?

A) EUKLLRNAUD

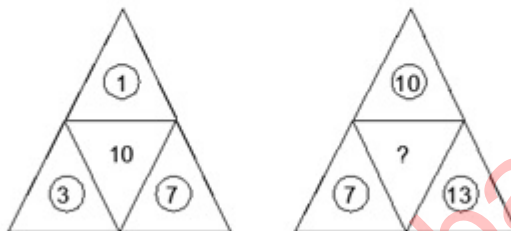
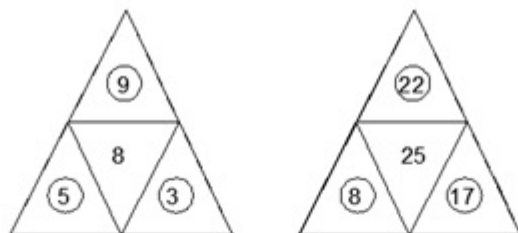
B) EUKRRNLAUD

C) EUKLRRAUDN

D) EUKLLRDAUN

E) EUKNNREAUN

14.



Soru işareti ile belirtilen yere hangi sayının geleceğini bulunuz.

Find the number which corresponds to the place indicated by the question mark.

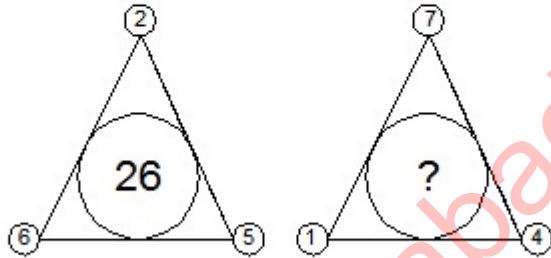
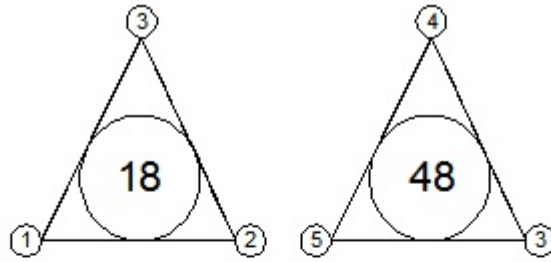
A) 14

B) 17

C) 20

D) 23

E) 32



Soru işareti ile belirtilen yere hangi sayının geleceğini bulunuz.  
Find the number which corresponds to the place indicated by the question mark.

A) 29

B) 34

C) 40

D) 58

E) 84

$$x \Delta y = x^i y^j$$

$$u \Delta (v \Delta u) = ?$$

A)  $u^i u^j v^{i^2}$

B)  $u^i u^j v^{j^2}$

C)  $u^i v^j v^{i^2}$

D)  $u^i v^j u^{j^2}$

E)  $u^i v^i u$

17.

8956 N 1445

5353 N 815

9271 N 1014

7549 N 1620

7238 N ?

**N sembolü ile belirlenen ilişkiye göre;  
soru işareti ile belirtilen yere hangi sayının  
geleceğini bulunuz.**

**In accordance with the relationship N  
Find the number which corresponds to the  
place indicated by the question mark.**

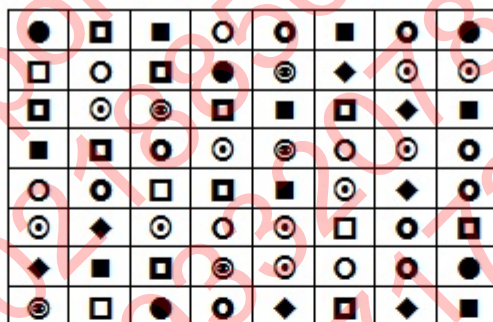
A) 2811

B)

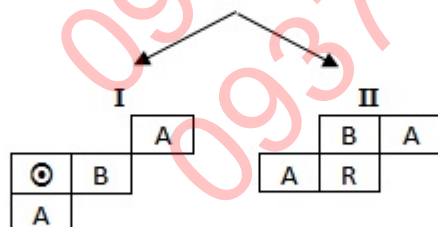




- Z T
- 
- ◐
- C) Z T
- 
- ◊ ★
- D) Z T
- 
- ★ ✱
- E) Z T
- 
- ✕ ◆



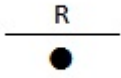
19.



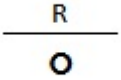
I ve II, yukarıdaki tablonun farklı birer parçasıdır. Buna göre R'nin yerine aşağıdakilerden hangisi gelmelidir?  
I and II are different parts of the figure above. Accordingly, which of the following combinations should replace R in II?

- A) R
- 
-

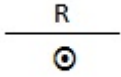
B)



C)



D)



E)



20 .

I. gruptaki sözcüklerin harfleri birer rakamla gösterilerek II. gruptaki sayılar elde edilmiştir. Soru işaretiyle belirtilen sözcüğün hangi sayıyla gösterildiğini bulunuz.

The numbers in group II stand for the words in group I, when each letter has been coded with a specific numeral. Find the number which corresponds to the word indicated by the question mark.

I.		II.
SETA	}	6129
CASİ		9374
TAKA		2383
DETC		7123

KİTE = ?

A) 8421

B)

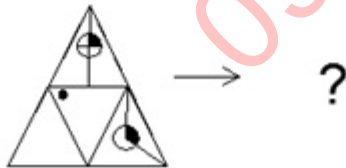
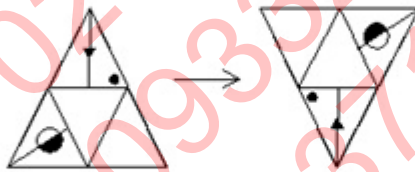
1253

C) 2164

D) 6534

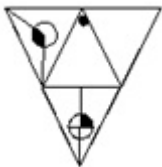
E) 4653

**Belirlenen ilişkiye göre soru işareti yerine  
hangi şeklin geleceğini bulunuz.**  
Find the figure which corresponds to the place  
indicated by the question mark in accordance with  
the relationship established.

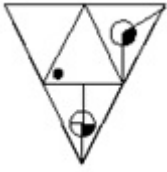


21 .

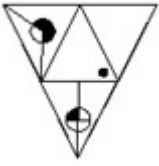
A)



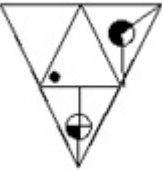
B)



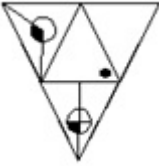
C)



D)



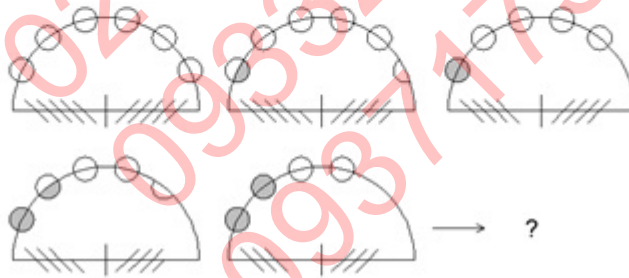
E)



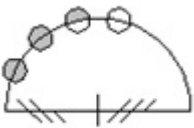
Belirlenen ilişkiye göre soru işareti yerine  
hangi şeklin geleceğini bulunuz.

Find the figure which corresponds to the  
place indicated by the question mark in  
accordance with the relationship established.

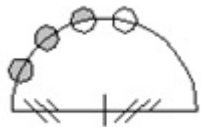
22.



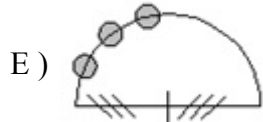
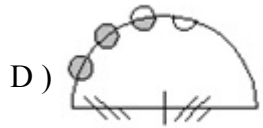
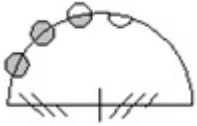
A)



B)



C)



23.

+	A	B	C
A		10	
B			5
C	3B		

Yukarıdaki toplama tablosunda A, B ve C harfleri birer pozitif sayının yerine kullanılmıştır. Buna göre B kaçtır?

In the addition table above, the letter A, B, and C each stand for a positive number. Accordingly, what is the value of B.

A) 2

B) 3

C) 4

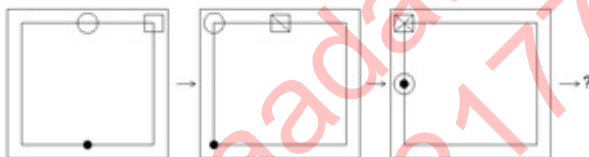
D)

5

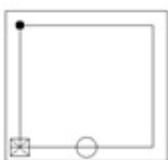
E) 6

24.

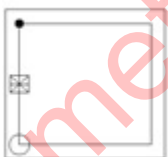
**Belirlenen ilişkiye göre soru işareti yerine  
hangi şeklin geleceğini bulunuz.**  
Find the figure which corresponds to the place  
indicated by the question mark in accordance with  
the relationship established.



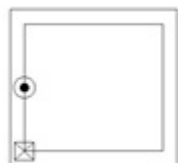
A)



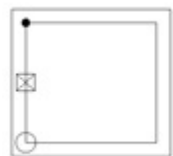
B)



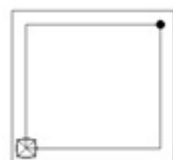
C)



D)

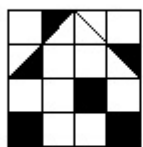


E)

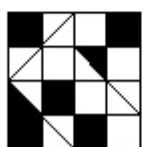


Belirlenen ilişkiye göre soru işareti yerine  
hangi şeklin geleceğini bulunuz.  
Find the figure which corresponds to the  
place indicated by the question mark in  
accordance with the relationship established.

25 .



→ 23/32



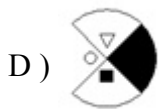
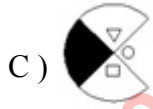
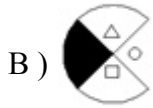
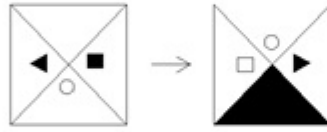
→ ?

A)  $\frac{2}{3}$ B)  $\frac{5}{8}$ C)  $\frac{19}{32}$ D)  $\frac{7}{32}$ E)  $\frac{3}{16}$ 

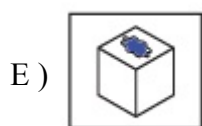
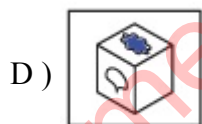
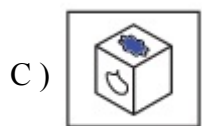
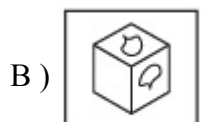
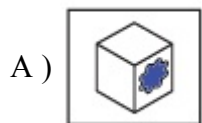
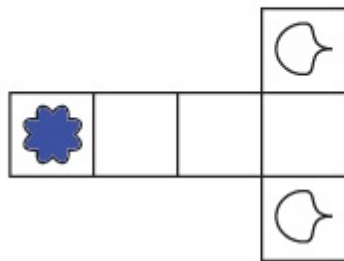
26 .



Belirlenen ilişkiye göre soru işareti yerine  
hangi şeklin geleceğini bulunuz.  
Find the figure which corresponds to the  
place indicated by the question mark in  
accordance with the relationship established.



Şekildeki küpün kapalı hali hangisidir?  
What does the resulting cube look like if you fold this cube together?

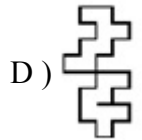
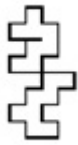


28.

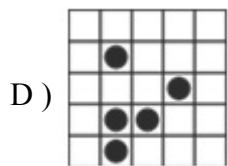
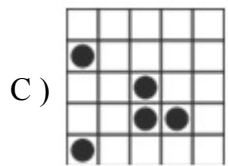
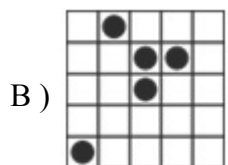
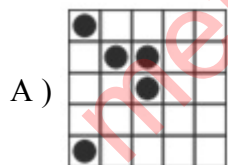
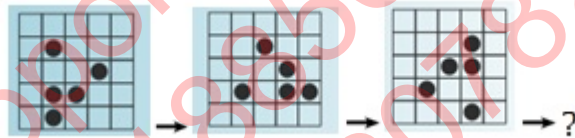
Aşağıdakilerden hangisi farklıdır?  
Which figure is not like the other?



B)

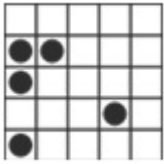


29.

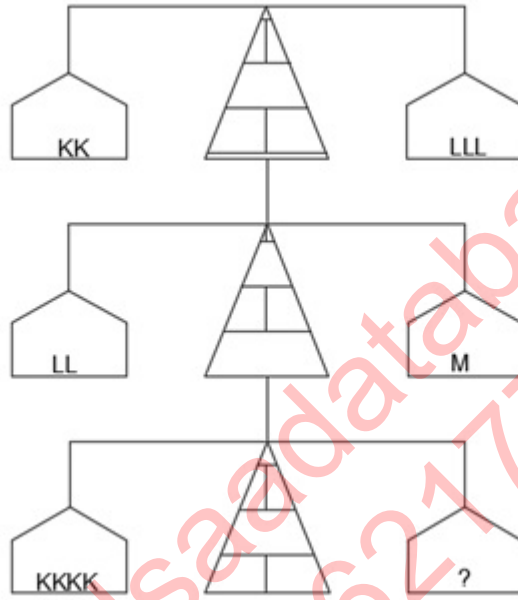


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E)



30 .



A) MM

B) MMM

C) MMMM

D) MMMMM

E)

MMMMMM

31 .

$$\frac{3}{x} \otimes \frac{4}{y} = x.y - 2x + 3y - 6$$

$$6 \otimes 2 = ?$$

A)  $-4$

B)  $0$

C)  $2$

D)  $2$

E)  $4$

metropolsaadatabad  
02188562177  
09332078261  
09371733570

32 .

$$a \Delta b = a - b + 2$$

$$\frac{a \Delta b}{a * b} = 2a + b$$

$$2 * 3 = ?$$

A)

7

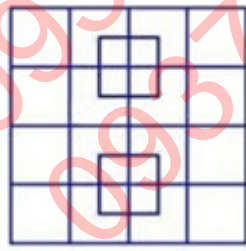
B)  $\frac{1}{7}$

C) 4

D) 5

E)  $\frac{1}{5}$

How many squares are there in the figure?  
Şekilde kaç küp vardır.



33 .

A) 28

B) 29

C)

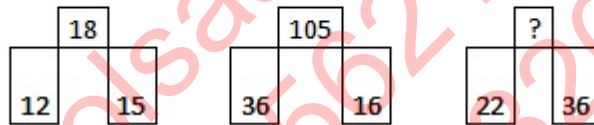
30

D) 31

E) 33

What number should replace the question mark?  
Soru işaretinin yerine hangi sayı gelmelidir?

34 .



A) 27

B) 36

C) 52

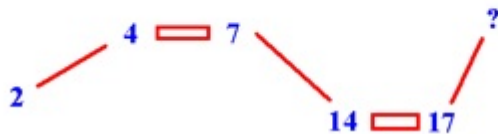
D) 82

E)

90

What number should replace the question mark?  
Soru işaretinin yerine hangi sayı gelmelidir?

35.



A) 11

B) 20

C) 23

D) 34

E) 35

36.

57▲62 ≡ 96  
31▲35 ≡ 32  
43▲72 ≡ 72  
23▲44 ≡ ?

A)



20

B) <sup>31</sup>C) <sup>40</sup>D) <sup>52</sup>E) <sup>66</sup>

37.

-1	1	3	5	7	...	?
1.	2.	3.	4.	5.	...	51.

A) <sup>71</sup>B) <sup>79</sup>C) <sup>85</sup>

D)

99

E) 103

38.

576Ψ	≡	41
317Ψ	≡	10
422Ψ	≡	10
235Ψ	≡	?

A) 10

B) 11

C) 17

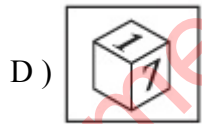
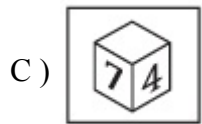
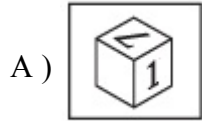
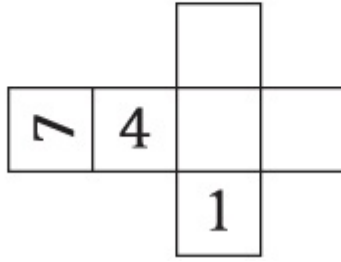
D) 30

E) 16

39.

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Şekildeki küpün kapalı hali hangisidir?  
What does the resulting cube look like if you  
fold this cube together?



40 .

**Aşağıda verilen şekil serisinde seriyi tamamlayacak şekil hangisidir?**  
Which of the figures above the line of drawings best completes the series?

