

1. $18 - [6 - (-3 + 1) \cdot 2 - (-6)] = ?$

- A) -1
- B) 0
- C) 2
- D) 10
- E) 16

2. $\frac{\frac{2018}{2020} - \left(\frac{2}{2019} - \frac{1}{1010}\right)}{\frac{2017}{2019}} = ?$

- A) $\frac{2020}{2019}$
- B) $\frac{2019}{2020}$
- C) $\frac{2018}{2019}$
- D) 1
- E) -1

3. $\frac{0,4}{0,02} - \left(\frac{0,99}{0,09} + \frac{2}{0,5}\right) = ?$

- A) 13
- B) 10
- C) 8
- D) 6
- E) 5

4. $\left(\frac{4}{x^2}\right)^{-1} = \left(\frac{2}{49}\right)^{-2}, x > 0 \Rightarrow x = ?$

- A) 7
- B) 14
- C) 21
- D) 28
- E) 49

5.
$$\left. \begin{array}{l} m = 2^4 \cdot 3^2 \cdot 7 \\ n = 2^3 \cdot 3 \cdot 5 \end{array} \right\} \Rightarrow \frac{m}{7n} = ?$$

- A) 7
B) $\frac{7}{5}$
C) 21
D) 35
E) $\frac{6}{5}$

6.
$$\sqrt[3]{-64} + \sqrt{16} + \sqrt[3]{-27} + \sqrt[6]{(-1)^6} = ?$$

- A) 12
B) 10
C) 1
D) -2
E) -4

7.
$$\sqrt[4]{(1-\sqrt{3})^4} + \sqrt[3]{(1-\sqrt{3})^3} = ?$$

- A) 0
B) 2
C) $\sqrt{6}$
D) $2\sqrt{6}$
E) $2-2\sqrt{3}$

8.
$$\left. \begin{array}{l} -4 \leq x \leq 3 \\ -3 \leq y < 4 \end{array} \right\} \Rightarrow \max(x^2 - 2y) = ?$$

- A) 24
B) 22
C) 17
D) 15
E) 3

13. $\frac{x}{x-2} - \frac{1}{x+1} + 2 = \frac{x}{x+1} \Rightarrow x = ?$

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

14. $\left. \begin{array}{l} x - \frac{3}{y} = 4 \\ y - \frac{3}{x} = 6 \end{array} \right\} \Rightarrow \frac{x}{y} + \frac{y}{x} = ?$

- A) 1
B) $\frac{2}{3}$
C) $\frac{13}{6}$
D) $\frac{3}{2}$
E) $\frac{6}{11}$

15. $A = \{a, b, \{a, c\}\}$ kümesiyle ilgili aşağıdakilerden hangisi **yanlıştır**?

For the given set $A = \{a, b, \{a, c\}\}$, which of the following is **false**?

بالنسبة للمجموعة $A = \{a, b, \{a, c\}\}$ أي واحدة خاطئة؟

- A) $\{a, c\} \in A$
B) $\{a\} \subset A$
C) $\{a, c\} \subset A$
D) $\{a, b\} \subset A$
E) $\{a, \{a, c\}\} \subset A$

16. $A = \{0, 2, 4, 6, 8, 10\}$ ve

$B = \{(x, y) \mid x + y = 10, x \in A, y \in A\}$ kümeleri verilmiş olsun. B kümesinin eleman sayısını bulunuz.

Let $A = \{0, 2, 4, 6, 8, 10\}$ and $B = \{(x, y) \mid x + y = 10, x \in A, y \in A\}$ Find the number of elements in set B?

$A = \{0, 2, 4, 6, 8, 10\}$ لنفرض
 $B = \{(x, y) \mid x + y = 10, x \in A, y \in A\}$ أوجد عدد العناصر في المجموعة B

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

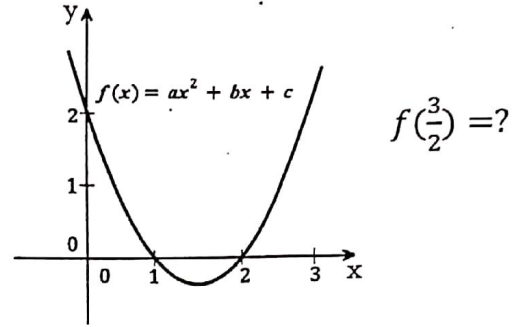
17. $(x - 2) \cdot P(x) = x^3 + ax^2 + x - 2$
 $\Rightarrow P(2) = ?$

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

18. $P(x - 1) + P(x) = 6x - 5$
 $\Rightarrow P(1) = ?$

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

19.



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

20. $f: \mathbb{R} - \{2\} \rightarrow \mathbb{R} - \{1\}$,

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

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

21. $\|m\| = 2m - 1$ şeklinde tanımlanıyor. Buna göre $\|2 + n\| = \|-n\| \Rightarrow n = ?$

If $\|m\| = 2m - 1$ then determine the value of n for the following equation;

$$\|2 + n\| = \|-n\|$$

إذا كان $\|m\| = 2m - 1$

حدد قيمة n في المعادلة التالية: $\|2 + n\| = \|-n\|$

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

22. $\cos x + \tan x \cdot \sin x = 2$

$$\Rightarrow 1 - 2 \sin^2 x = ?$$

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

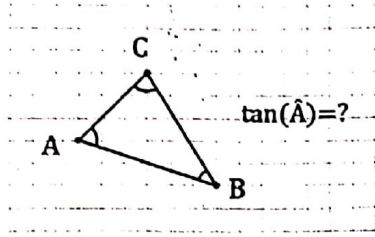
23. $n < \log 24000 < n + 1 \Rightarrow n = ?$

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

24. $f(x) = 2^{x+2} \Rightarrow f(2x) = ?$

- A) $2f(x)$
- B) $f^2(x)$
- C) $\frac{f(x)}{4}$
- D) $\frac{f^2(x)}{4}$
- E) $4f^2(x)$

25.



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

26. $\log_{216}(2x + 4) = \frac{1}{3} \Rightarrow x = ?$

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

27. $\lim_{x \rightarrow \infty} \frac{ax^2 + 4x - 5}{cx + 3} = \frac{1}{4} \Rightarrow a + c = ?$

- A) 5
- B) 9
- C) 16
- D) 20
- E) 24

28. $f(x) = 2x - \ln(2x) \Rightarrow \lim_{x \rightarrow 2} \frac{f(x) - f(2)}{x - 2} = ?$

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

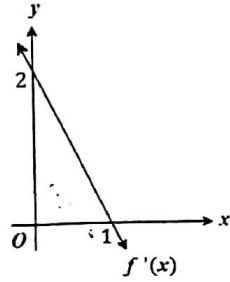
29. $f(x^3) = x^2 - 16x + 4 \Rightarrow f'(8) = ?$

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

30. Şekilde $f'(x)$ fonksiyonunun grafiği verilmiştir. $f(0) = 2 \Rightarrow f(1) = ?$

Graph of function $f'(x)$ is given below. Accordingly, if $f(0) = 2$ then find the value of $f(1)$.

شكل التابع $f'(x)$ موجود في الأسفل. وفقاً لذلك، إذا كان $f(0) = 2$ حدد قيمة $f(1)$



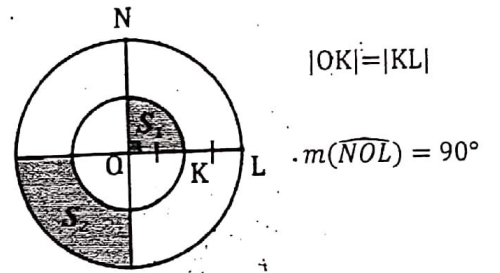
- A) -3
- B) -1
- C) 0
- D) 2
- E) 3

31. Şekildeki O noktası dairelerin ortak merkezidir. S_1 ve S_2 taralı bölgelerin alanı olmak üzere;

$$\frac{S_1}{S_2} = ?$$

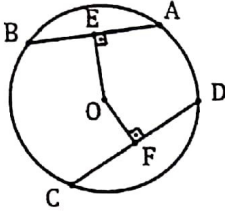
The point O is the center of both circles. Find the value of $\frac{S_1}{S_2}$ (S_1, S_2 denotes the shaded areas).

النقطة O هي مركز كلا من الدائرتين. أوجد قيمة $\frac{S_1}{S_2}$ تشيران إلى المناطق المظلمة (S_1, S_2)



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

32. O merkezli çemberde;
O is the centre of circle;
O هي مركز الدائرة



$$|AB| = |DC|$$

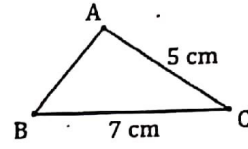
$$|OE| = 2x + 1 \text{ cm}$$

$$|OF| = 3x - 2 \text{ cm}$$

$$\Rightarrow |OF| = ? \text{ cm}$$

- A) 8
B) 7
C) 6
D) 4
E) 3

33.



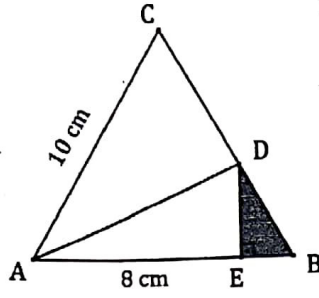
Bütün kenar uzunlukları cm cinsinden tam sayı olan ABC üçgeni verilmiştir. Bu üçgenin ikizkenar üçgen olma olasılığı nedir?

Let ABC be a triangle. The sizes for all three sides of ABC are integers in centimeters. What is the probability that ABC is an isosceles triangle?

لنفرض أن ABC مثلث. طول الأضلاع الثلاثة ABC هي أرقام صحيحة السنتيمتر. ما هو احتمال أن ABC هو مثلث متساوي الساقين.

- A) $\frac{1}{2}$
B) $\frac{2}{9}$
C) $\frac{1}{7}$
D) $\frac{2}{5}$
E) $\frac{3}{10}$

34.



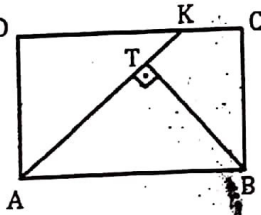
ABC üçgeni eşkenar üçgendir. Verilenlere göre DEB üçgeninin alanı bulunuz.

ABC is an equilateral triangle. Find the area of DEB.

ABC هو مثلث متساوي الأضلاع. أوجد مساحة DEB

- A) 4 cm^2
- B) $2\sqrt{3} \text{ cm}^2$
- C) 6 cm^2
- D) $6\sqrt{3} \text{ cm}^2$
- E) 8 cm^2

35.



$$\begin{aligned} [KA] &\perp [TB] \\ |KA| &= 10 \text{ cm} \\ |TB| &= 6 \text{ cm} \end{aligned}$$

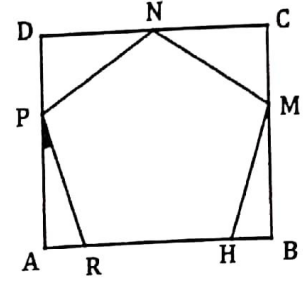
ABCD dikdörtgenin alanı kaç cm^2 dir?

Find the area of ABCD.

أوجد مساحة ABCD.

- A) 50.
- B) 60
- C) 30
- D) 26
- E) 20

36.



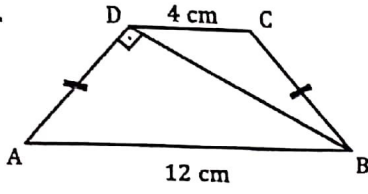
ABCD bir dikdörtgen ve RHMNP düzgün beşgendir. $m(\widehat{APR}) = ?$

ABCD is a rectangle and RHMNP is a regular pentagon. What is the size of angle APR?

ABCD هو مستطيل و RHMNP هو مخمس منتظم. ما هو قياس الزاوية APR؟

- A) 72°
- B) 54°
- C) 48°
- D) 36°
- E) 18°

37.



$$\begin{aligned} |AD| &\perp |BD|, \\ |AB| &\parallel |DC|, \\ |DC| &= 4 \text{ cm}, \\ |AB| &= 12 \text{ cm} \end{aligned}$$

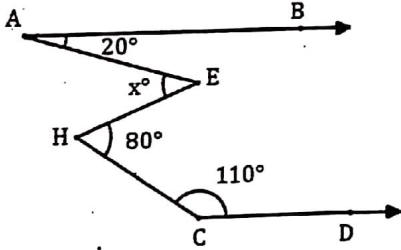
ABCD yamuğunun alanı nedir?

Find the area of ABCD trapezoid.

أوجد مساحة شبه المنحرف ABCD.

- A) 16 cm^2
- B) $32\sqrt{2} \text{ cm}^2$
- C) 36 cm^2
- D) $16\sqrt{2} \text{ cm}^2$
- E) 48 cm^2

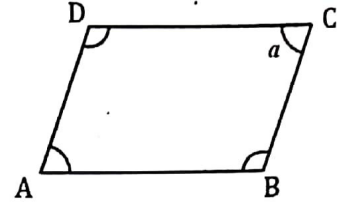
38.



$$[AB \parallel CD \Rightarrow x = ?$$

- A) 20
- B) 30
- C) 40
- D) 45
- E) 50

39.



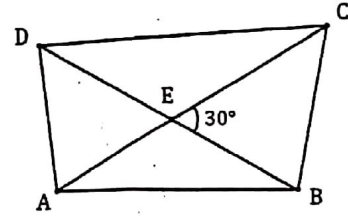
$$\begin{aligned} |AD| &\parallel |BC|, \\ |DC| &\parallel |AB|, \end{aligned}$$

$$m(\widehat{D}) = (3x + 50)^\circ$$

$$m(\widehat{A}) = (7x - 70)^\circ \Rightarrow \alpha = ?$$

- A) 50°
- B) 55°
- C) 60°
- D) 70°
- E) 110°

40.



$$\begin{aligned} |AC| &= 10 \text{ cm} \\ |BD| &= 6 \text{ cm} \\ n(\widehat{CEB}) &= 30^\circ \end{aligned}$$

ABCD dörtgenin alanı kaç cm^2 dir?

Find the area of ABCD.

أوجد مساحة ABCD

- A) 15
- B) 20
- C) 30
- D) 60
- E) 120

1. $GTEP = 100111$
 $ATP = 010101$
 $GNT = 101100$
 $GANTEP = ?$

- A) 111111
 B) 110110
 C) 010101
 D) 111010
 E) 101010

2. 754312875431287543128754...
 Sayı dizisinde 132. sayı aşağıdakilerden hangisidir?

In the following number squence, what is the 132th number?

في سلسلة الأرقام التالية، ما هو الرقم الثاني و الثلاثون بعد المنبة
 ؟(132)

- A) 7
 B) 5
 C) 4
 D) 2
 E) 8

3. Aşağıda verilen sayı çiftleri arasında bir ilişki vardır. Buna göre A nın değerini bulunuz?
 There is a relation between the number pairs.
 Find the value of A accordingly.

هناك علاقة بين أزواج الأرقام. أوجد قيمة A وفقاً لذلك.

(371, 53), (133, 19), (70, A)

A = ?

- A) 56
 B) 44
 C) 10
 D) 7
 E) 5

4.

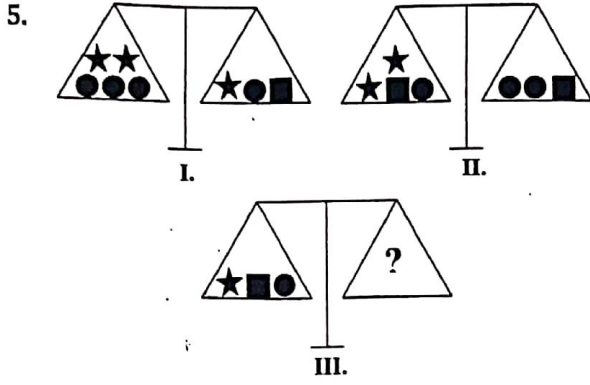
SELAM	3 2 5 4 1
LEMAS	2 5 3 4 1
LASEM	3 4 1 2 5
ASLEM	5 4 3 2 1
ALMES	2 3 1 4 5

I

II

ELMAS = ?

- A) 13542
 B) 13425
 C) 43125
 D) 34125
 E) 42315

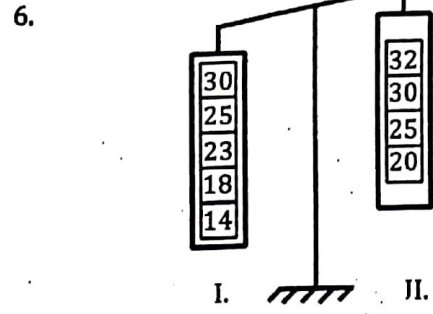


I. ve II. terazi dengededir. III. terazinin dengede olabilmesi için sağ kefeye ★ türü ağırlıktan kaç tane koymak gerekir?

Scale I and II are balanced. To keep scale III balanced, how many weights should be placed on the right hand side of the scale?

★ الميزان I و II متوازنان. لكي تبقي الميزان III متوازن، كم وزن يجب أن يوضع على الجزء الأيمن من الميزان؟

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



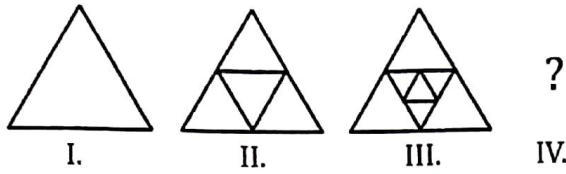
Terazinin dengeye gelmesi için her bir kefedен hangi ağırlıklar alınmalıdır?

In order to get the scale balanced, which weights should be removed from each side?

لكي تجعل الميزان يتوازن، ما هي الأوزان التي يجب إزالتها من كل طرف؟

- | I | II |
|-------|----|
| A) 20 | 23 |
| B) 18 | 20 |
| C) 23 | 20 |
| D) 23 | 32 |
| E) 14 | 25 |

7.



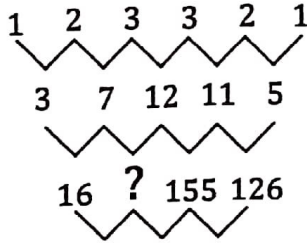
IV. adımdaki üçgen sayısı kaçtır?

Find the number of triangles in step IV.

أوجد عدد المثلثات في الخطوة IV

- A) 13
- B) 17
- C) 21
- D) 25
- E) 29

8.



- A) 19
- B) 28
- C) 61
- D) 151
- E) 201

9.

1	G	A	U	Z	E	M
2	A	U	Z	E	M	G
3	U	Z	E	M	G	A
4	Z	E	M	G	A	U
5	E	M	G	A	U	Z
6	M	G	A	U	Z	E
7	...					
75	?	?	?	?	?	?

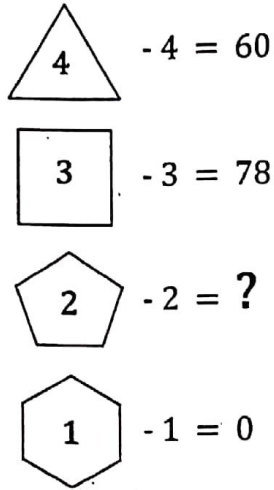
75. sıraya aşağıdaki dizilimlerden hangisi gelmelidir?

What is the 75th of the above sequence?

ما هو الخامس و السبعون (75) في السلسلة في الأعلى؟

- A) G A U Z E M
- B) A U Z E M G
- C) U Z E M G A
- D) Z E M G A U
- E) M G A U Z E

10.



- A) 14
- B) 30
- C) 48
- D) 62
- E) 126

11.

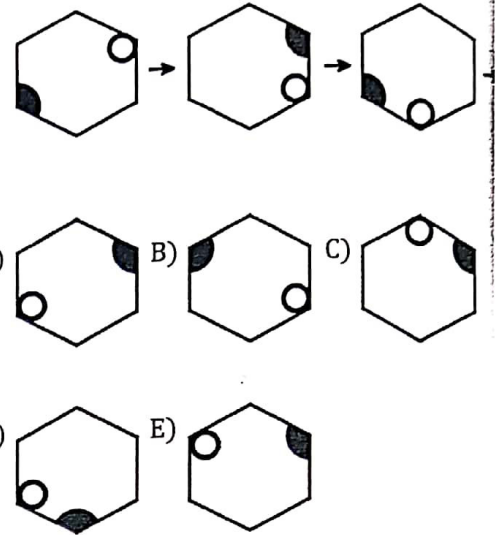
	P	N
P		3P
N		
R	6P	

X	P	N	R
P	A		
N		B	
R			C

$$\frac{C}{A+B} = ?$$

- A) 18
- B) 12
- C) 10
- D) 7
- E) 5

12.



13.

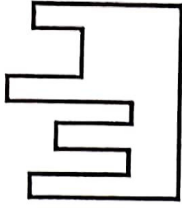
	a	b
a	k	
b		m

$$a, b \in Z$$

$$k - m = 13 \Rightarrow a = ?$$

- A) 12
- B) 10
- C) 9
- D) 7
- E) 6

14.



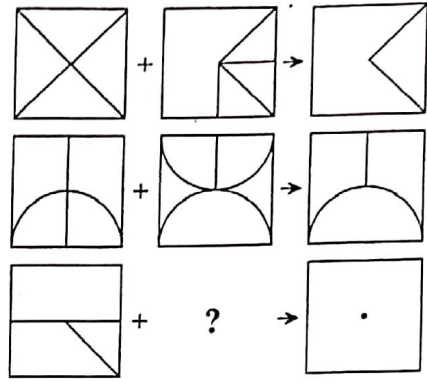
Verilen şekli kareye tamamlayan parça hangisidir?

Which part completes the given shape to a square?

أي جزء يكمل الشكل المعطى ليصبح مربع؟

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

15.



- A) B) C) D) E)

16.

I.	II.
CİN	956
KİN	273
DEF	973
KUM	418

FEN = ?

- A) 813
B) 923
C) 937
D) 657
E) 253

17. 4 x 4 tabloda 1'den 4'e kadar olan rakamlar her satırda ve her sütunda birer kez kullanılmıştır.

In the 4 x 4 matrix above, numbers from 1 to 4 were used only once in each of the rows and columns.

في المصفوفة 4 x 4 في الأعلى، الأعداد من 1 إلى 4 استخدمت مرة واحدة فقط في كل من الصفوف و الأعمدة

	4	Y	3
X	1		
2		4	Z

$$X \cdot Y + Z = ?$$

- A) 18
B) 15
C) 13
D) 11
E) 9

- 18.

x	a	b
a	p	3
b		r

x	a	b
a		4
b		

$$p + r = ?$$

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

- 19.

$$\begin{array}{c} \triangle \\ \triangle \\ \triangle \\ 3 \end{array} + \begin{array}{c} \triangle \\ \triangle \\ 3 \end{array} + \begin{array}{c} \triangle \\ 3 \end{array} = 18$$

$$\begin{array}{c} \triangle \\ \triangle \\ \triangle \\ 4 \end{array} + \begin{array}{c} \triangle \\ \triangle \\ 4 \end{array} + \begin{array}{c} \triangle \\ 4 \end{array} = 24$$

$$\begin{array}{c} \triangle \\ \triangle \\ \triangle \\ 5 \end{array} + \begin{array}{c} \triangle \\ \triangle \\ 5 \end{array} + \begin{array}{c} \triangle \\ 5 \end{array} = ?$$

- A) 45
B) 40
C) 35
D) 30
E) 25

- 20.

$$\Delta \quad \blacksquare \quad * \quad \# \quad = \quad 1375$$

$$\blacksquare \quad \# \quad \Delta \quad * \quad = \quad 3517$$

$$\square \quad \# \quad \Phi \quad * \quad = \quad 3214$$

$$\Phi \quad \Delta \quad \blacksquare \quad \square \quad = \quad 4752$$

$$* \quad \# \quad \square \quad \Delta \quad = \quad ?$$

- A) 5413
B) 2314
C) 1423
D) 5432
E) 3251

21. Verilen 5 x 5 Sudokuda 1'den 5'e kadar olan rakamlar her satırda ve her sütunda birer kez kullanılmıştır. Buna göre aşağıdakilerden hangileri doğrudur?

In the given 5 x 5 Sudoku, digits from 1 to 5 were used only once in each of the rows and columns. According to this table, which of the below statements are true?

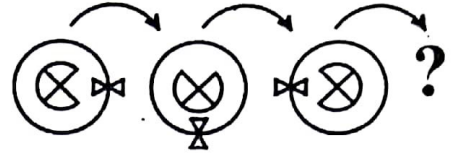
في أحجية (سودوكو) 5 x 5, الأرقام من 1 حتى 5 استخدمت مرة واحدة فقط في كل من الصفوف و الأعمدة. وفقاً لهذا الجدول, ما هي التعابير الصحيحة في الأسفل؟

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

- I. $A + B + C = 5$
 II. $B \cdot C - D = 6$
 III. $B^2 - E^2 = 2$
 IV. $C + D \cdot E = 14$

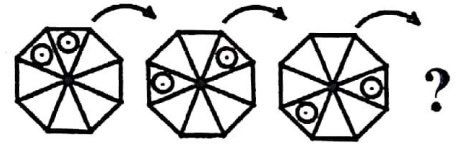
- A) I, II
 B) II, III, IV
 C) II, III
 D) I, II, III
 E) II, IV

22.

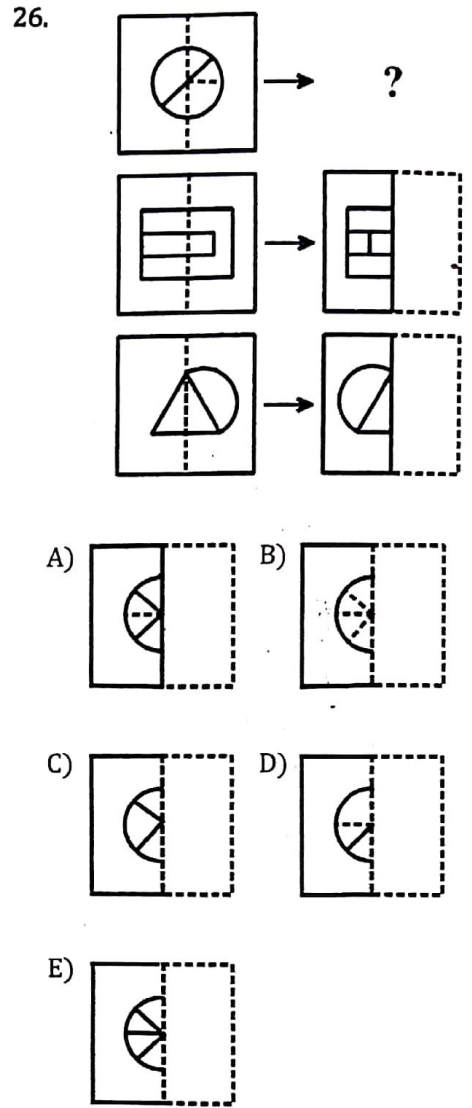
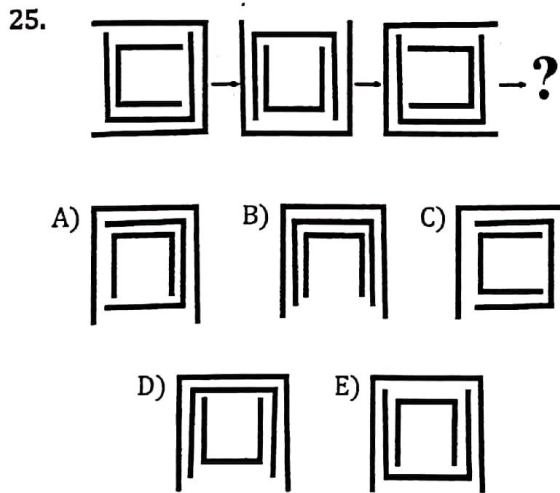
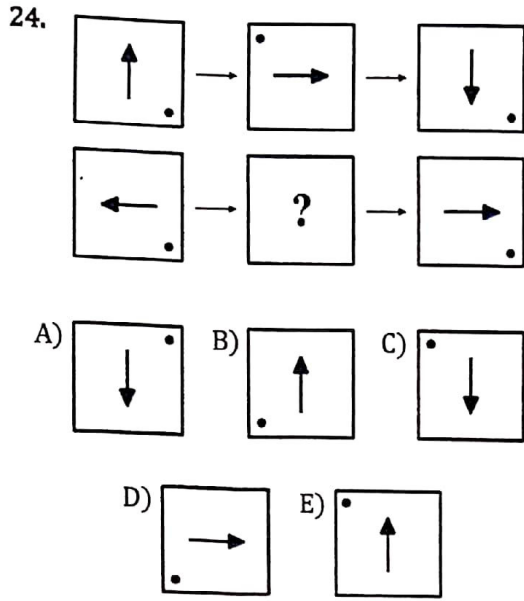


- A) B) C)
 D) E)

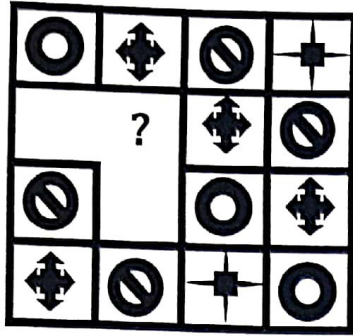
23.



- A) B) C)
 D) E)

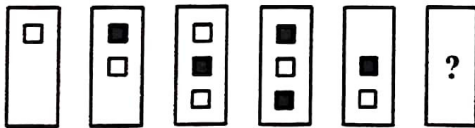


27.



- A) B) C) D) E)

28.



- A) B) C) D) E)

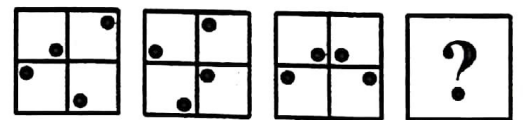
29.

1	1	2	3	5	8	13
2	1	3	4	7	11	18
2	2	4	6	10	16	26
3	1	4	5	A	14	28
1	B	3	5	8	13	21
4	1	5	6	11	C	28
3	2	D	7	12	19	31

$$A + B \cdot C - D = ?$$

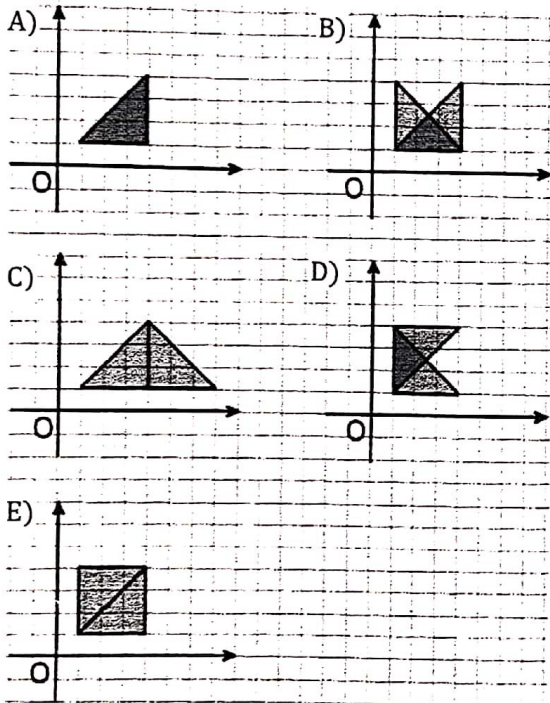
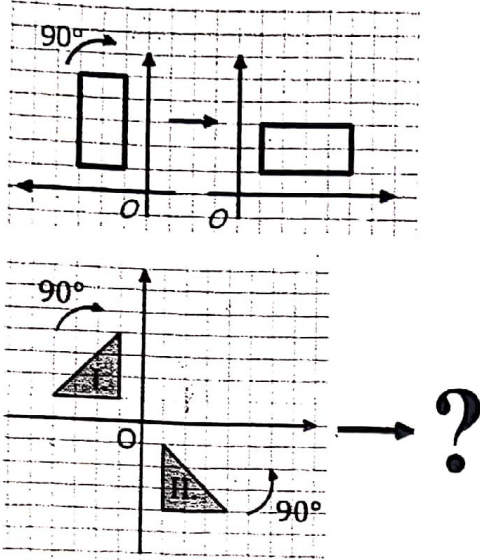
- A) 132
B) 104
C) 76
D) 38
E) 12

30.

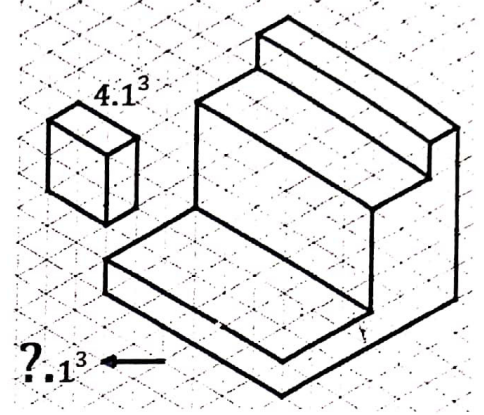


- A) B) C) D) E)

31.

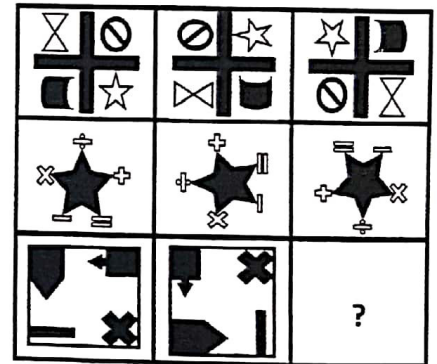


32.



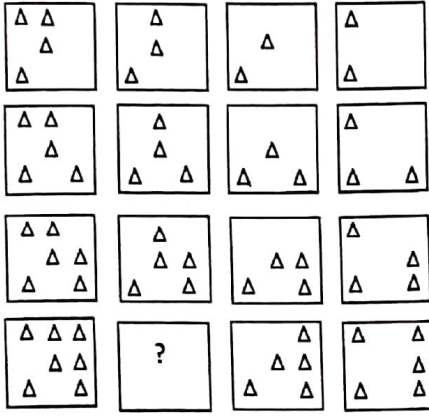
- A) 96
- B) 72
- C) 64
- D) 54
- E) 27

33.



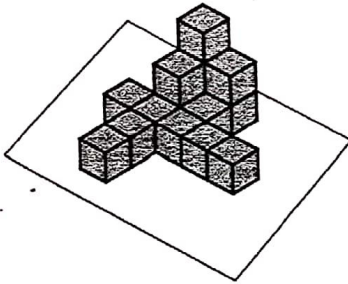
- A)
- B)
- C)
- D)
- E)

34.



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

35.



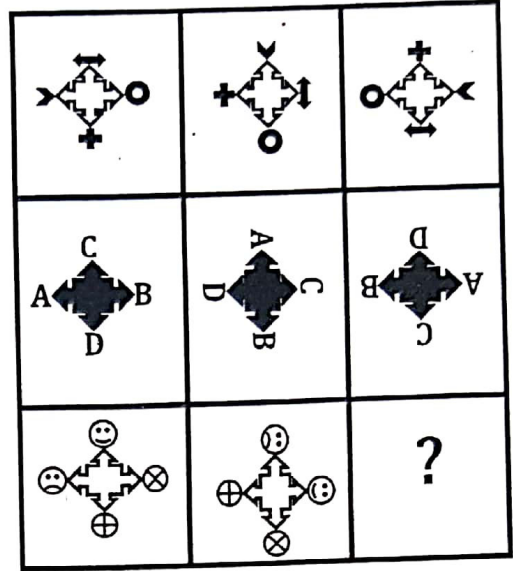
Şekildeki yapı kaç birim küpten oluşmuştur?

How many unit cubes are used to construct the structure given in the figure?

كم مكعب يستخدم لإنشاء البنية المعطاة في الشكل؟

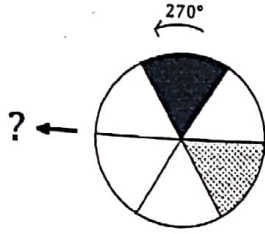
- A) 14
B) 15
C) 18
D) 20
E) 21

36.



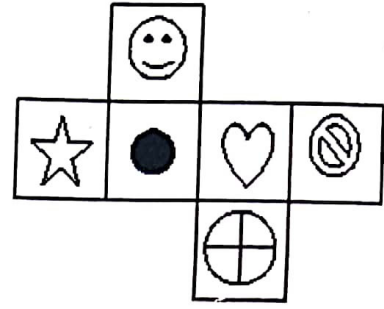
- A) B)
- C) D)
- E)

37.



- A) B) C) D) E)

38.



Açık hali verilen küpün kapalı hali hangisidir?

What could be the closed version of the open cube?

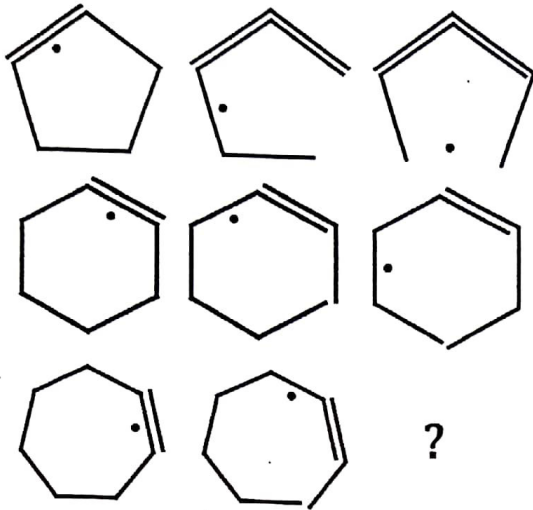
ماذا يمكن أن يكون الشكل المغلق للمكعب المفتوح؟

- A) B) C) D) E)

GAÜN YÖS 2019

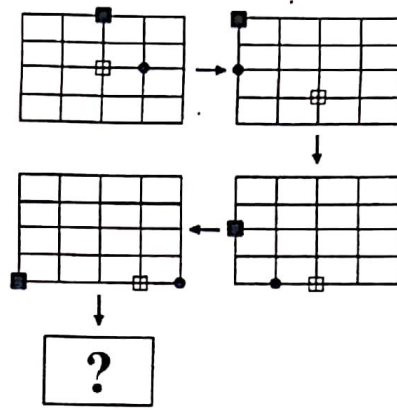


39.



- A) B) C) D) E)

40.



- A) B) C) D) E)