

1. $\left(\frac{1}{2} - \frac{2}{3}\right) - \left[\left(2 : \frac{1}{4}\right) \frac{1}{4} - \frac{5}{6}\right] = ?$

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

2. $\frac{\sqrt{0,98} + \sqrt{1,62} + \sqrt{0,72}}{\sqrt{2,42}} = ?$

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

3. $\frac{\sqrt[3]{(-6)^3} - \sqrt{(-3)^2}}{\sqrt[3]{(-3)^2} \sqrt{(-3)^2}} = ?$

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

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

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

5. $1, \overline{3} - 0, \overline{6} = ?$

- A) $0,7\overline{6}$ B) $0, \overline{7}$ C) $0,6\overline{7}$
D) $0, \overline{67}$ E) $0, \overline{6}$

6. $(100)_5 + (310)_5 = (1002)_4 + (2ab)_4$

$\Rightarrow a + b = ?$

- A) 1 B) 3 C) 4 D) 5 E) 6

$$7. \frac{4}{1 + \frac{15}{1 + \frac{4}{x-6}}} = -1 \Rightarrow x = ?$$

- A) -4 B) -1 C) 1 D) 4 **E) 5**

$$10. \sqrt{\frac{10}{9} - \sqrt{\frac{10}{9} - \sqrt{\frac{10}{9} - \dots}}} = ?$$

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

$$8. \left. \begin{array}{l} \frac{a+2b}{b} = \frac{7}{3} \\ \frac{a-2c}{c} = \frac{1}{3} \end{array} \right\} \Rightarrow \frac{a+c}{b-a} = ?$$

- A) $-\frac{18}{7}$ B) $-\frac{1}{3}$ **C) $\frac{5}{7}$**
 D) $\frac{13}{5}$ E) $\frac{20}{7}$

$$11. \frac{(2n+1)!}{(2n-1)!} = 420 \Rightarrow n = ?$$

- A) 6 B) 8 C) 9 **D) 10** E) 12

$$9. \frac{1+\sqrt{3}}{\sqrt{5}-\sqrt{3}} = a \Rightarrow \frac{\sqrt{3}+\sqrt{5}}{\sqrt{3}-1} = ?$$

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

$$12. x^2 - 6x + 5 < 0 \Rightarrow \frac{|x(x-1)| - |x^2+x-2|}{2x^2-3x+1} = ?$$

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

13. $\frac{3x-2}{\sqrt{3}-\sqrt{2}} = \sqrt{5+2\sqrt{6}} \Rightarrow x = ?$

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

14. $f(x, y) = 2x^y - 3y^x \Rightarrow f(f(3,1), 2) = ?$

- A) -9 **B) -6** C) 0 D) 6 E) 9

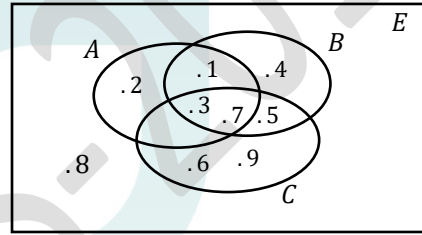
15. $A = \{x: x \in \mathbb{R}, |x-1| \geq 3\}$
 $B = \{y: y \in \mathbb{R}, |y+1| \leq 3\} \Rightarrow A \cap B = ?$

- A) $[-4, -2]$ B) $[-4, -1]$ C) $[-4, 0]$
 D) $[-4, -2] \cup [4, 6]$ E) $[-4, 6]$

16. $\left. \begin{array}{l} A = \{-1, 0, 2, 4\} \\ B \cup C = \{-2, -1, 2, 3, 5\} \end{array} \right\} \Rightarrow (A \setminus B) \setminus C = ?$

- A) $\{0\}$ B) $\{-1, 4\}$ **C) $\{0, 4\}$** D) $\{2, 4\}$ E) $\{-1, 2\}$

17.



$(A \cup B) \setminus (B \cap C) = ?$

- A) $\{1, 2, 3, 7\}$ B) $\{1, 2, 4, 5\}$ C) $\{3, 7, 5\}$
 D) $\{1, 2, 3, 4, 7\}$ **E) $\{1, 2, 4\}$**

18. $\left. \begin{array}{l} P(2x-1) = 2x^3 - 2x^2 + 3x + 4 \\ P(x-1) = (x+2)B(x) + K \\ K \in \mathbb{R} \end{array} \right\} \Rightarrow K = ?$

- A) -26 **B) -3** C) 4 D) 7 E) 18

19.
$$\frac{\sin 23^\circ \cos 37^\circ + \sin 37^\circ \cos 23^\circ}{\cos 23^\circ \cos 37^\circ - \sin 23^\circ \sin 37^\circ} = ?$$

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

20.
$$\tan\left(\frac{\pi}{2} + \frac{3\pi}{4}\right) - \cot\left(\frac{13\pi}{4}\right) = ?$$

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

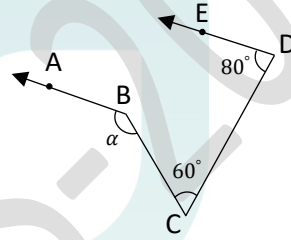
21.
$$z = \frac{1 - \sqrt{7}i}{\sqrt{3} - i} \Rightarrow |z^4| = ?$$

- A)
- $\sqrt{2}$
- B) 2
- C) 4**
- D) 8 E) 16

22.
$$\left. \begin{array}{l} \log_3 2 = a \\ \log_9 5 = b \end{array} \right\} \Rightarrow \log_6 40 = ?$$

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

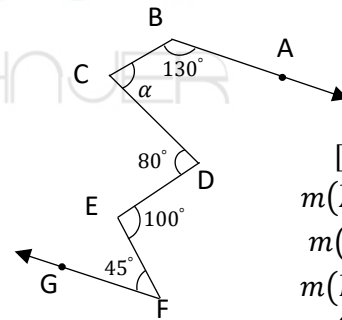
23.



$$\left. \begin{array}{l} [BA // [DE \\ m(\widehat{BCD}) = 60^\circ \\ m(\widehat{CDE}) = 80^\circ \end{array} \right\} \Rightarrow \alpha = ?$$

- A)
- 110°
- B)
- 120°
- C) 140°**
- D)
- 160°
- E)
- 220°

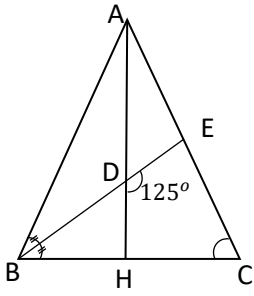
24.



$$\left. \begin{array}{l} [BA // [FG \\ m(\widehat{ABC}) = 130^\circ \\ m(\widehat{CDE}) = 80^\circ \\ m(\widehat{DEF}) = 100^\circ \\ m(\widehat{EFG}) = 45^\circ \\ m(\widehat{BCD}) = \alpha \end{array} \right\} \Rightarrow \alpha = ?$$

- A)
- 60°
- B)
- 65°
- C)
- 70°
- D) 75°**
- E)
- 80°

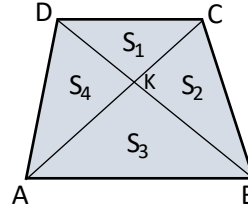
25.



$$\left. \begin{aligned} |AB| &= |AC| \\ |BH| &= |HC| \\ m(\widehat{ABD}) &= m(\widehat{DBH}) \\ m(\widehat{EDH}) &= 125^\circ \end{aligned} \right\} \Rightarrow m(\widehat{ECH}) = ?$$

- A) 35° B) 45° C) 56° D) 60° **E) 70°**

27.

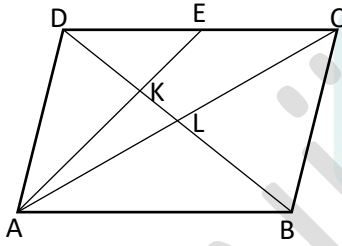


$$\left. \begin{aligned} [AB] // [DC] \\ [AC] \cap [DB] = \{K\} \\ 2|AB| = 5|DC| \end{aligned} \right\}$$

$$\Rightarrow \frac{A(DKC)}{A(ABCD)} = \frac{S_1}{S_1 + S_2 + S_3 + S_4} = ?$$

- A) $\frac{2}{25}$ B) $\frac{4}{25}$ C) $\frac{2}{49}$ **D) $\frac{4}{49}$** E) $\frac{5}{49}$

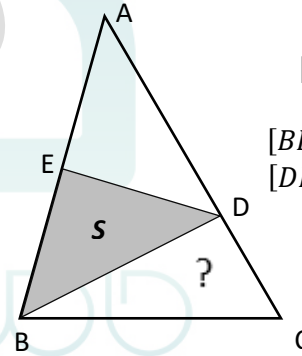
26.



$$\left. \begin{aligned} [AB] // [DC], [AD] // [BC] \\ [BD] \cap [AE] = \{K\} \\ [BD] \cap [AC] = \{L\} \\ |DE| = |EC|, |DK| = 4cm \end{aligned} \right\} \Rightarrow |LB| = ? cm$$

- A) 6** B) 8 C) 10 D) 12 E) 14

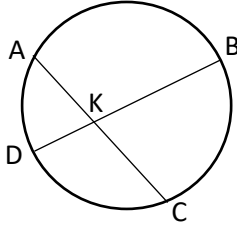
28.



$$\left. \begin{aligned} |AD| &= 2|DC| \\ |AE| &= |EB| \\ [BD] \cap [AC] &= \{D\} \\ [DE] \cap [AB] &= \{E\} \\ A(EBD) &= S \\ \Rightarrow A(DBC) &= ? \end{aligned} \right\}$$

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

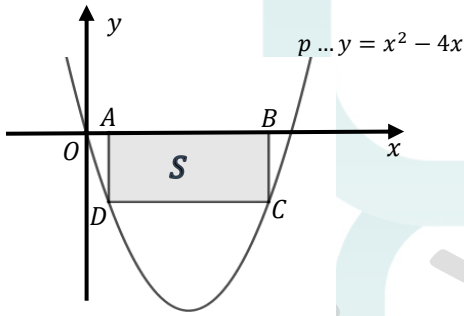
29.



$$\left. \begin{aligned} [AC] \cap [DB] &= \{K\} \\ m(\widehat{DKC}) &= 105^\circ \\ m(\widehat{AD}) &= 70^\circ \end{aligned} \right\} \Rightarrow m(\widehat{BC}) = ?$$

- A) 70° **B) 80°** C) 100°
 D) 110° E) 120°

30.



$$\left. \begin{aligned} [AB] // [DC] \\ [AD] // [BC] \\ [AD] \perp [AB] \\ |AB| = 2|AD| \\ [DC] \cap p = \{C, D\} \\ [AB] \in Ox \end{aligned} \right\} \Rightarrow A(ABCD) = S = ?$$

- A) $9 - \sqrt{17}$** B) $9 - \sqrt{5}$ C) 9
 D) $9 + \sqrt{5}$ E) $9 + \sqrt{17}$

31. $A_k = \{(x, y) : x, y \in \mathbb{R}, y = x + k\}, (k \in \mathbb{R})$

$B = \{(x, y) : x, y \in \mathbb{R}, x^2 + y^2 - 2x - 2y = 16\}$

$A_k \cap B \neq \emptyset \Rightarrow k = ?$

A) $k \in [-5, 5]$ B) $k \in [-5, 4]$ C) $k \in [-6, 4]$

D) $k \in [-4, 4]$ **E) $k \in [-6, 6]$**

32.

$$\left. \begin{aligned} a_1 &= 4, \\ a_n &= 2^n a_{n+1}, \\ n \in \mathbb{N} &= \{1, 2, 3, 4, \dots\} \end{aligned} \right\} \Rightarrow a_{20} = ?$$

A) 2^{-200} B) 2^{-188} C) 2^{-100}

D) 2^{100} E) 2^{200}

33. $\lim_{x \rightarrow 0} \frac{\tan x}{3x^2 - x} = ?$

A) -1 B) 0 C) 1 D) 2 E) ∞

34.

$f(x) = \sin(x^2 + 2x) \Rightarrow f'(0) = ?$

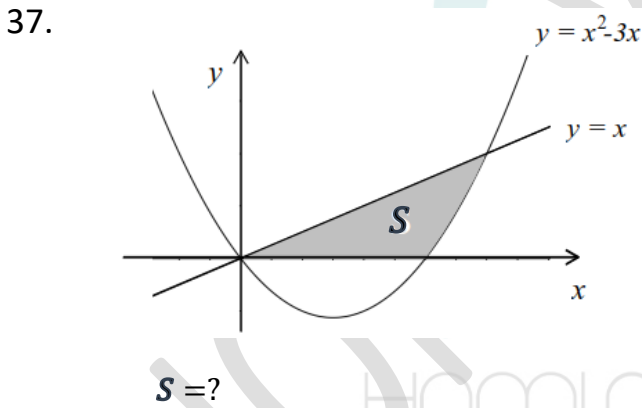
A) -2 B) -1 C) 0 D) 1 **E) 2**

35.
$$\left. \begin{array}{l} x = 2 \ln t - 1 \\ y = e^{2t} - t^2 \end{array} \right\} \Rightarrow \frac{dy}{dx} = ?$$

- A) $\frac{e^{2t}-2t}{2 \ln t}$ B) $te^{2t} - t^2$ C) $-\frac{e^{2t}-2t}{t}$
 D) $2 \ln t(e^{2t} - t)$ E) $-\frac{te^{2t}-t^2}{2t}$

36.
$$\int_e^{e^2} \ln(ex) dx = ?$$

- A) 1 B) e C) $e(2e - 1)$
 D) $2e(1 - e)$ E) $e^2 + e$



- A) $\frac{32}{9}$ B) $\frac{17}{3}$ C) $\frac{37}{7}$ D) $\frac{37}{6}$ E) 8

38.
$$\int_1^2 xe^x dx = ?$$

- A) 0 B) 1 C) e D) $2e^2 - 3e$ E) e^2

39.
$$A = \begin{bmatrix} 0 & -1 \\ 1 & -1 \end{bmatrix} \Rightarrow A - A^{-1} = ?$$

- A) $\begin{bmatrix} -2 & 1 \\ -1 & -2 \end{bmatrix}$ B) $\begin{bmatrix} 0 & 1 \\ -2 & 1 \end{bmatrix}$ C) $\begin{bmatrix} 2 & -1 \\ -1 & -2 \end{bmatrix}$
 D) $\begin{bmatrix} 1 & -2 \\ 2 & -1 \end{bmatrix}$ E) $\begin{bmatrix} 1 & -2 \\ -2 & -1 \end{bmatrix}$

40.
$$A = \begin{bmatrix} -1 & 0 & 0 \\ 0 & 2 & 0 \\ 1 & 2 & -1 \end{bmatrix} \Rightarrow 2A^2 = ?$$

- A) $\begin{bmatrix} 2 & 0 & 0 \\ 0 & 4 & 0 \\ 4 & -2 & 2 \end{bmatrix}$ B) $\begin{bmatrix} 2 & 0 & 0 \\ 0 & 8 & 0 \\ -4 & 2 & 2 \end{bmatrix}$
 C) $\begin{bmatrix} 2 & 0 & 0 \\ 0 & 8 & 0 \\ -4 & 4 & 2 \end{bmatrix}$ D) $\begin{bmatrix} 2 & 0 & 0 \\ 0 & 8 & 0 \\ -4 & -4 & 2 \end{bmatrix}$
 E) $\begin{bmatrix} 2 & 0 & 0 \\ 0 & 8 & 0 \\ 4 & -4 & 2 \end{bmatrix}$



1. I. 324 → 1
II. 752 → 10
III. 641 → 9
IV. 483 → 9
V. 310 → 4
VI. 384 → ?
- A) 6 **B) 7** C) 9 D) 11 E) 13

2. I. 344 → 13
II. 752 → 3
III. 645 → 14
IV. 481 → 4
V. 384 → 29
VI. 483 → ?
- A) 5 B) 9 C) 12 **D) 20** E) 21

3. I. 2361 → 16
II. 2754 → 21
III. 3647 → 25
IV. 4481 → 37
V. 5183 → 44
VI. 6876 → ?
- A) 51 B) 55 **C) 56** D) 59 E) 60

4. 645271 → 516472
764538 → 487635
301986 → 163089
587532 → ?
- A) 725853 B) 758235 C) 857352
D) 527835 **E) 725835**

5. 4 * 2 = 18
5 * 3 = 28
6 * 2 = 38
8 * 4 = 68
9 * 3 = ?
- A) 77 B) 78 C) 83 **D) 84** E) 98

6. 7 △ 2 = 45
6 △ 5 = 11
8 △ 4 = 48
7 △ 5 = 24
9 △ 6 = ?
- A) 16 B) 27 C) 34 **D) 45** E) 52

7.

A) 2538 B) 2534 C) 2564
D) 4538 E) 4534

8.

- A) B) C)
D) E)

9.

- A) 3 B) 6 C) 8 D) 9 E) 12

10.

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

11.

- A) B) C)
D) E)

12. 4, 6, 11, 13, 18, X, 25, 27 ...

X=?

- A) 19 B) 20 C) 21 D) 22 E) 23

13. \rightarrow 59
 \rightarrow 916
 \rightarrow 365
 \rightarrow 46
 \rightarrow ?
- A) 54 B) 59 C) 64 D) 253 **E) 254**

- 16.
- A) 10 B) 17 **C) 24** D) 28 E) 42

14. } $\left. \begin{array}{l} 2874 \\ 4358 \\ 3465 \\ 8623 \\ 7586 \end{array} \right\}$
- $\diamond \diamond \odot * = ?$
- A) 5748 **B) 5768** C) 6458
D) 6754 E) 7685

- 17.
- $(1,2) = ?$
- A) (T,P) B) (T,X) C) (Z,P) **D) (Z,T)** E) (Z,X)

15. $\left. \begin{array}{l} 5268 \\ 8536 \\ 6893 \\ 2379 \end{array} \right\}$
- $\odot \triangle \square \blacktriangleright = ?$
- A) 9867 B) 6729 C) 8635
D) 9387 **E) 9386**

18. 2, 6, 4, 7, 11, 9, 12, 16, X, 17, 21, ...
X=?
- A) 13 **B) 14** C) 15 D) 17 E) 18

19.

3	4	1	6
2	8	6	4
4	3	2	5
X	9	5	5

X = ?

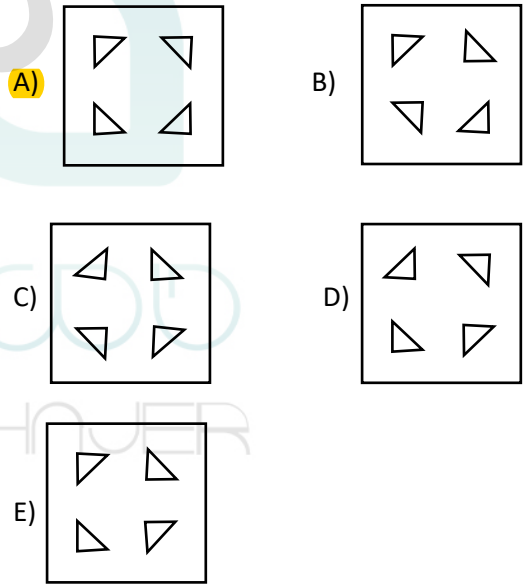
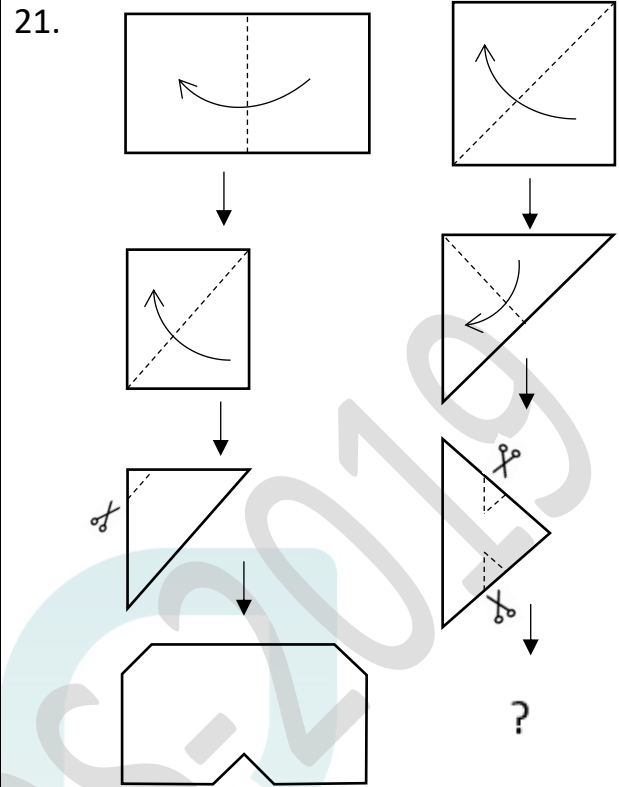
- A) 1 B) 2 C) 3 D) 5 E) 6

20.

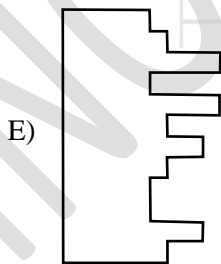
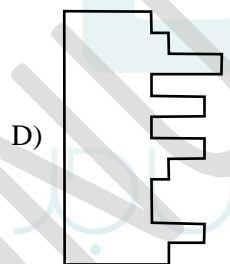
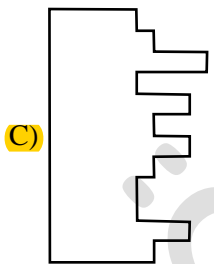
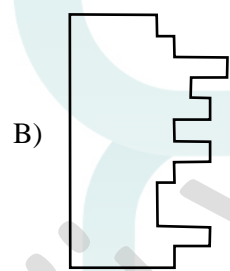
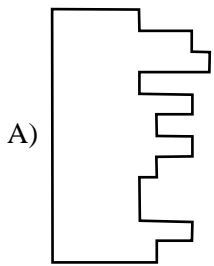
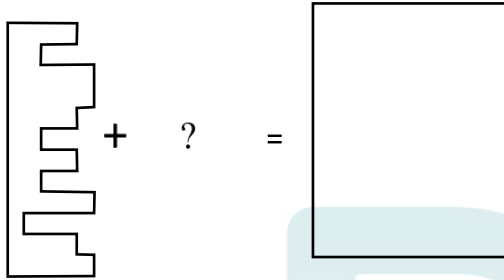
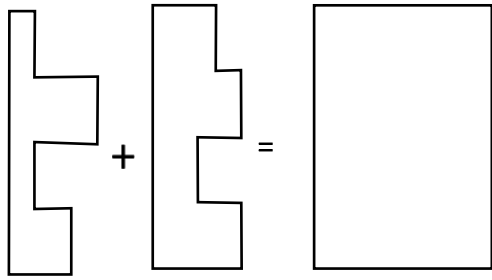
ROKA	}	5653
LALE		3426
ELMA		4643
NANE		7816

KARAMEL=?

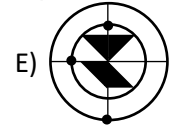
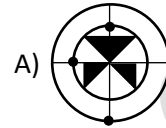
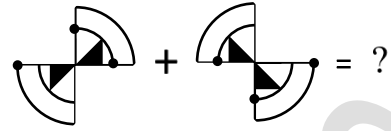
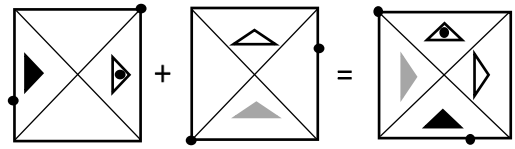
- A) 1373264 B) 1676534 C) 1676234
D) 8373264 E) 1373564



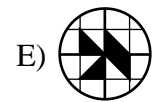
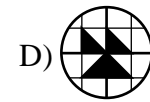
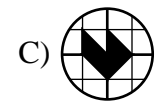
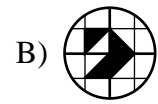
22.



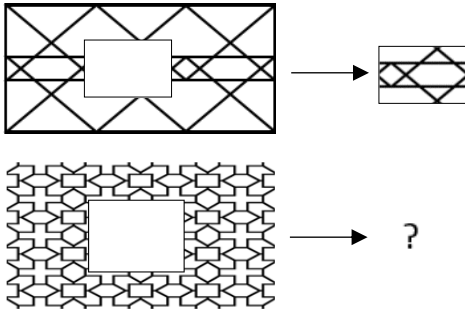
23.



24.

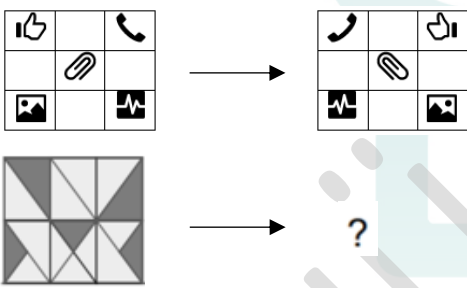


25.



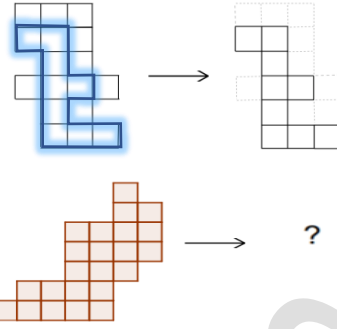
- A) B) C) D) E)

26.



- A) B) C) D) E)

27.



- A) B) C) D) E)

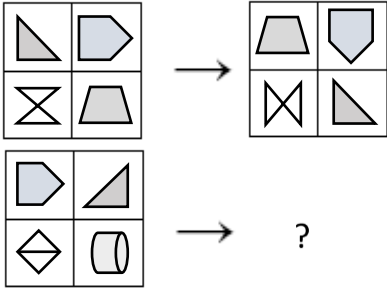
28.

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

X = ?

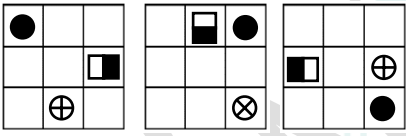
- A) 1 B) 2 C) 3 D) 4 **E) 6**

29.



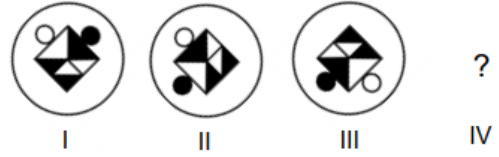
- A) B) C) D) E)

30.



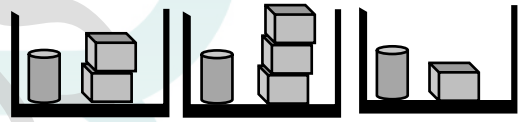
- A) B) C) D) E)

31.



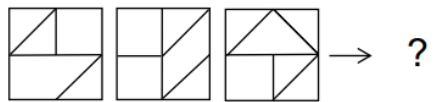
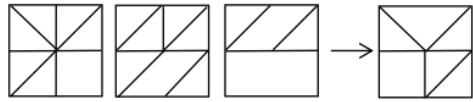
- A) B) C) D) E)

32.



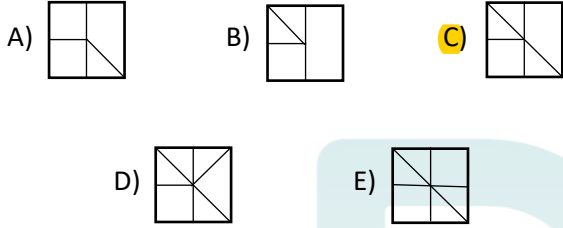
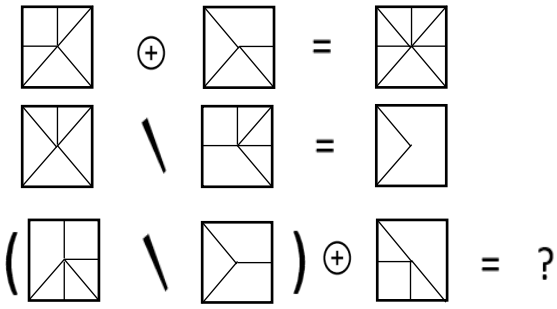
- $a \text{ kg}$ $b \text{ kg}$ $x \text{ kg}$
- $x = ?$
- A) $a - b$ B) $\frac{a}{2}$ C) $2a - b$
- D) $8a - 5b$ E) $\frac{a+2b}{8}$

33.

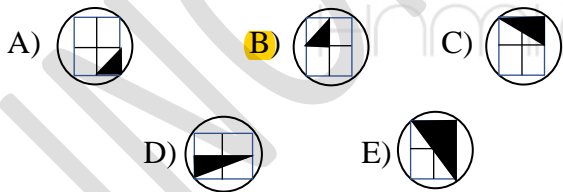
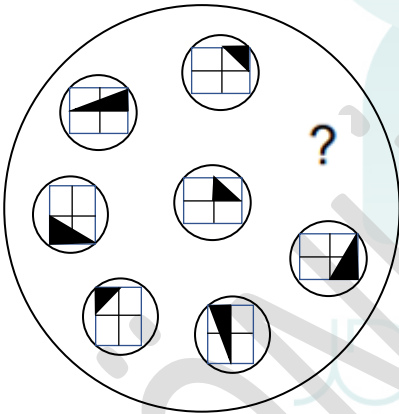


- A) B) C) D) E)

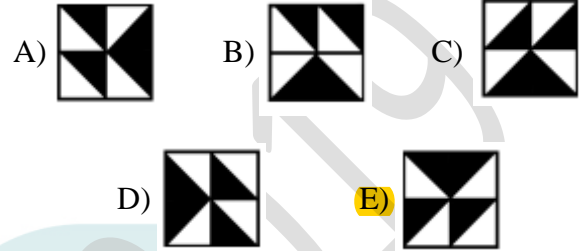
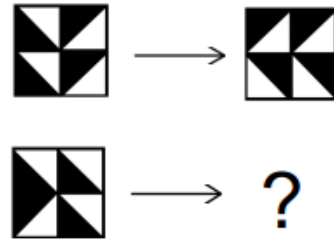
34.



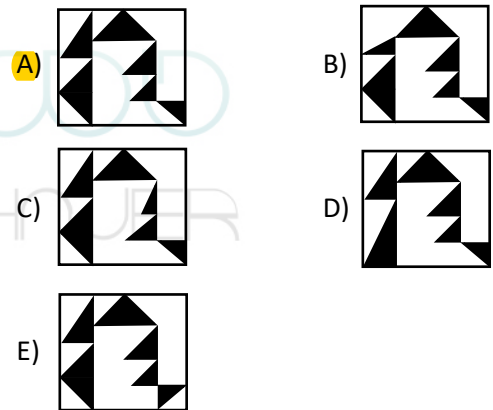
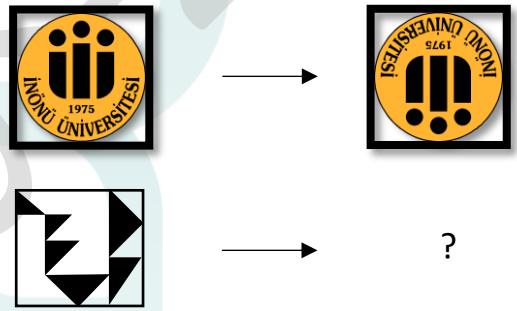
35.

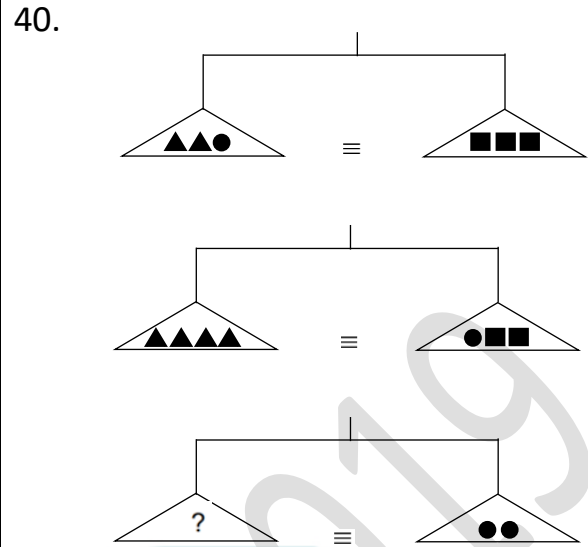
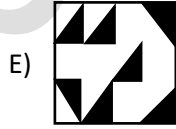
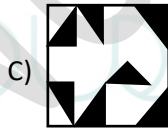
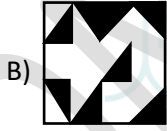
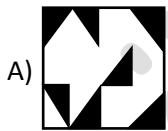
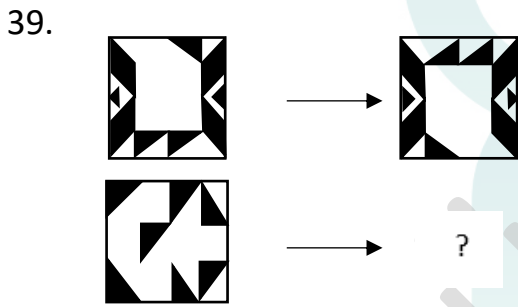
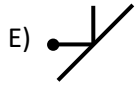


36.



37.





TEST BİTTİ. LÜTFEN CEVAPLARINIZI
KONTROL EDİNİZ.

TEST IS COMPLETED. PLEASE CHECK
YOUR ANSWERS.

انتهت أسئلة الاختبار