

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

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

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

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

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

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

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

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

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

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

- 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

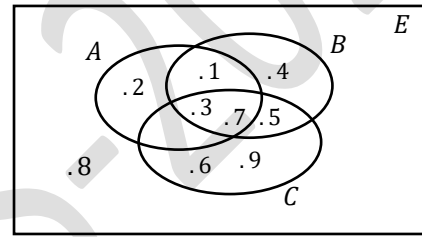
15.  $A = \{x: x \in \mathbb{R}, |x-1| \geq 3\}$   
 $B = \{y: y \in \mathbb{R}, |y+1| \leq 3\} \Rightarrow A \cap B = ?$

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

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

- 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.  $P(2x-1) = 2x^3 - 2x^2 + 3x + 4$   
 $P(x-1) = (x+2)B(x) + K$   
 $K \in \mathbb{R} \Rightarrow K = ?$

- 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

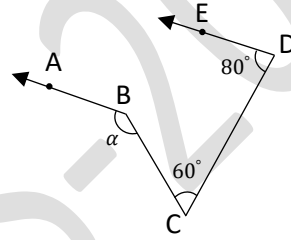
21. 
$$z = \frac{1 - \sqrt{7}i}{\sqrt{3} - i} \Rightarrow |z^4| = ?$$

- 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)
- $\frac{3a+2b}{1+a}$

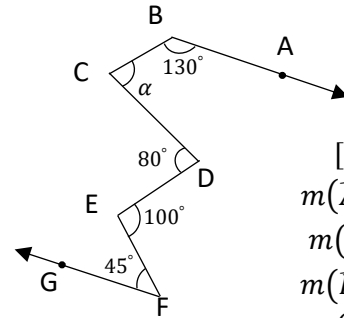
23.



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

- A)
- $110^\circ$
- B)
- $120^\circ$
- C)
- $140^\circ$
- D)
- $160^\circ$
- E)
- $220^\circ$

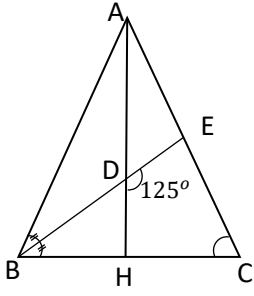
24.



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

- A)
- $60^\circ$
- B)
- $65^\circ$
- C)
- $70^\circ$
- D)
- $75^\circ$
- E)
- $80^\circ$

25.

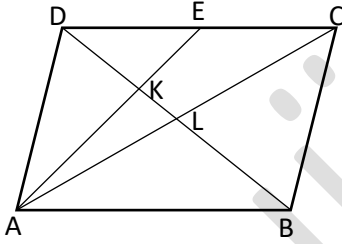


$$\left. \begin{array}{l} |AB| = |AC| \\ |BH| = |HC| \\ m(\widehat{ABD}) = m(\widehat{DBH}) \\ m(\widehat{EDH}) = 125^\circ \end{array} \right\}$$

$$\Rightarrow m(\widehat{ECH}) = ?$$

- A)  $35^\circ$    B)  $45^\circ$    C)  $56^\circ$    D)  $60^\circ$    E)  $70^\circ$

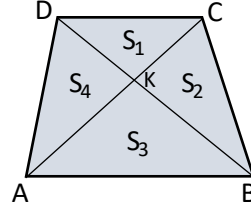
26.



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

- A) 6   B) 8   C) 10   D) 12   E) 14

27.

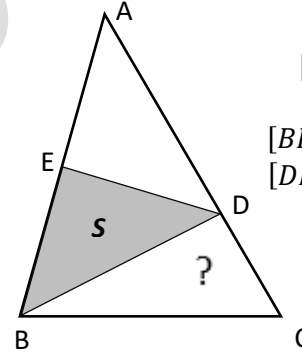


$$\left. \begin{array}{l} [AB] // [DC] \\ [AC] \cap [DB] = \{K\} \\ 2|AB| = 5|DC| \end{array} \right\}$$

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

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

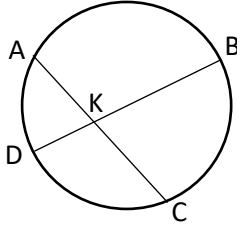
28.



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

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

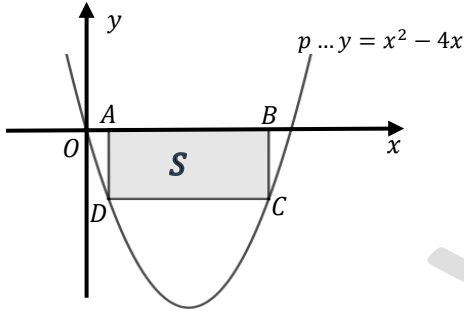
29.



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

- A)  $70^\circ$       B)  $80^\circ$       C)  $100^\circ$   
D)  $110^\circ$       E)  $120^\circ$

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)  $\infty$

34.

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

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

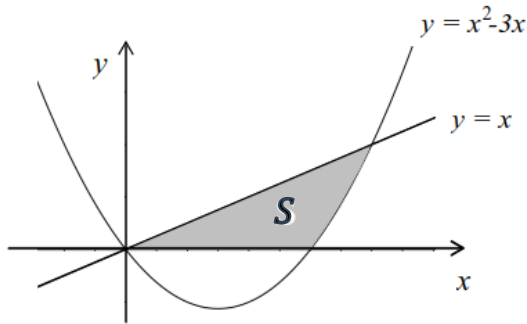
35.  $\left. \begin{array}{l} x = 2 \ln t - 1 \\ y = e^{2t} - t^2 \end{array} \right\} \Rightarrow \frac{dy}{dx} = ?$

- 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)  $e^2 + e$

37.


 $S = ?$ 

- 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. 

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. 

14. 

15. 

16.

A) 10    B) 17    C) 24    D) 28    E) 42

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

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

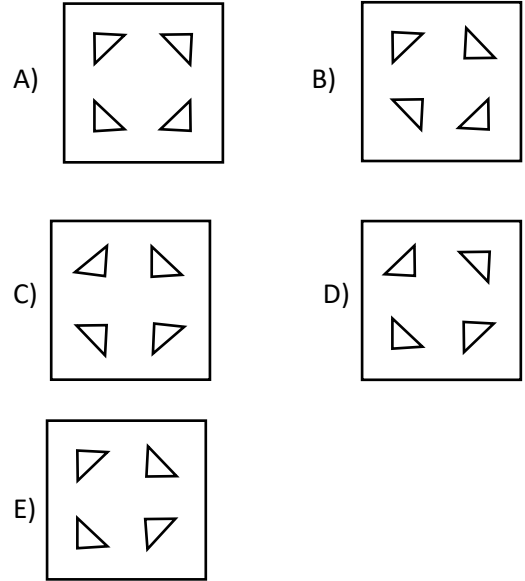
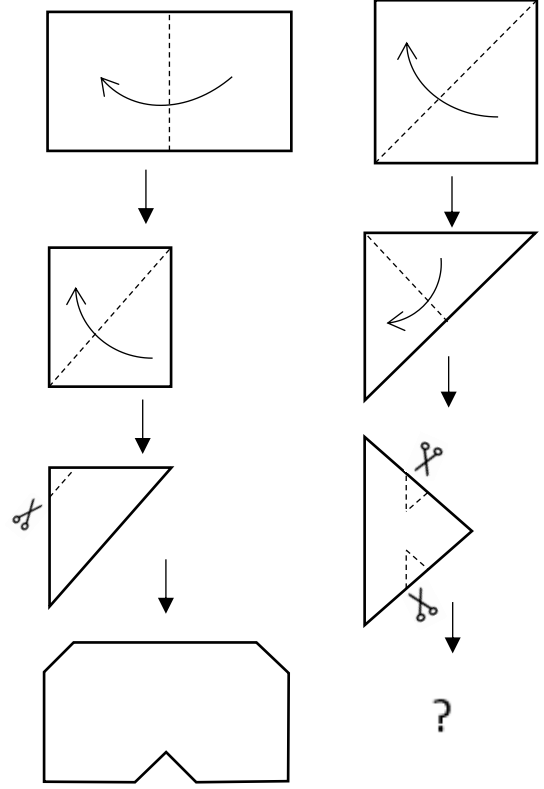
20.

ROKA	}	5653
LALE		3426
ELMA		4643
NANE		7816

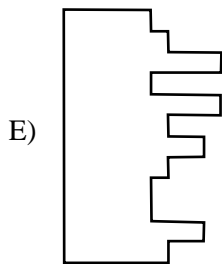
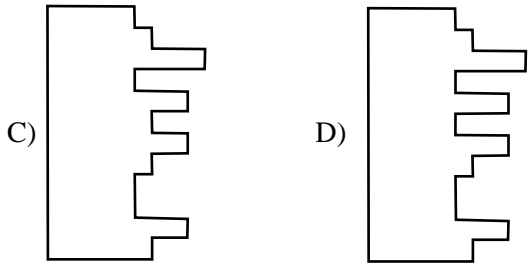
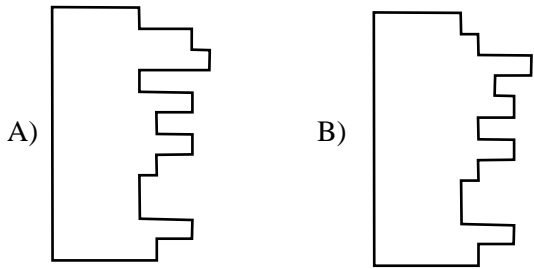
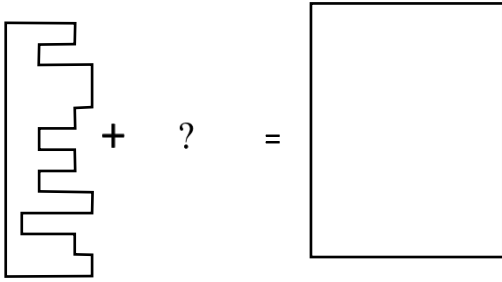
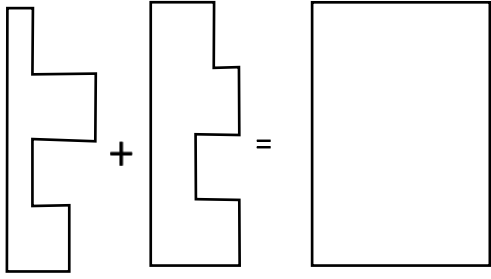
KARAMEL=?

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

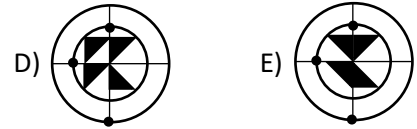
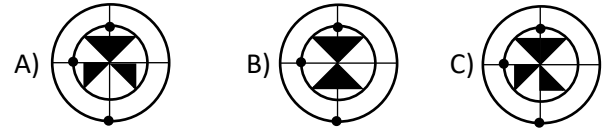
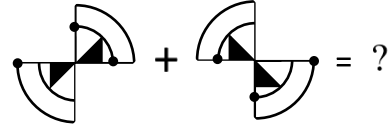
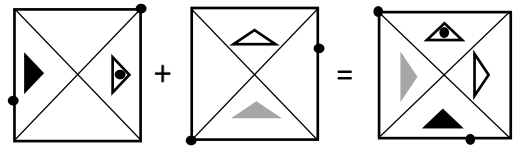
21.



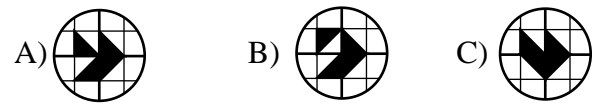
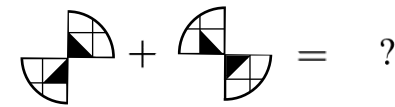
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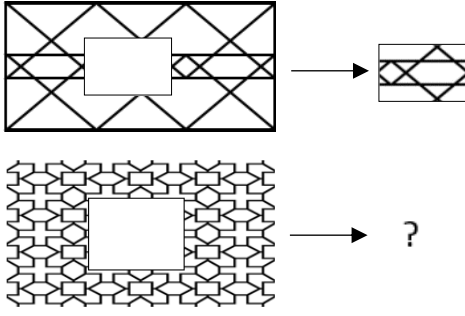
23.



24.

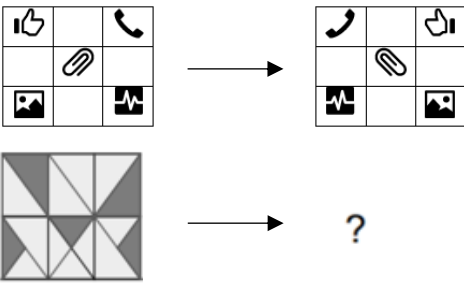


25.



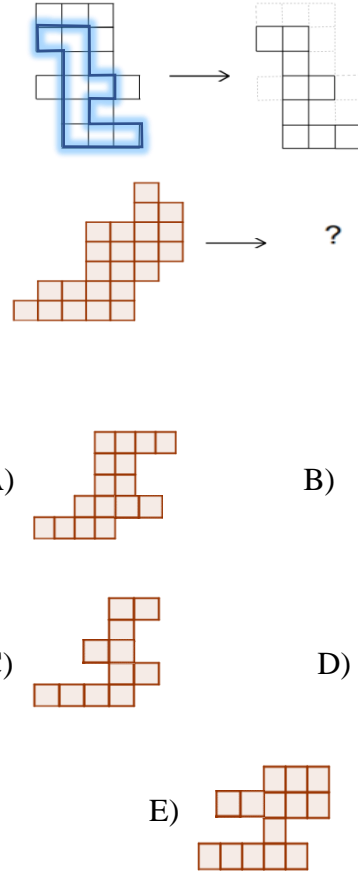
- A) B) C)   
D) E)

26.



- A) B) C)   
D) E)

27.



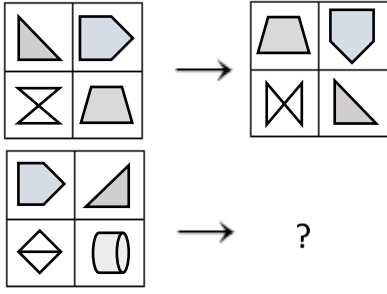
28.

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

X = ?

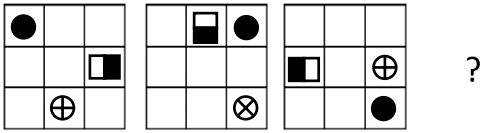
- A) 1 B) 2 C) 3 D) 4 E) 6

29.



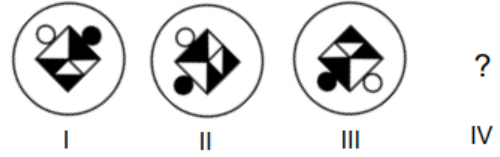
- A)
- B)
- C)
- D)
- E)

30.



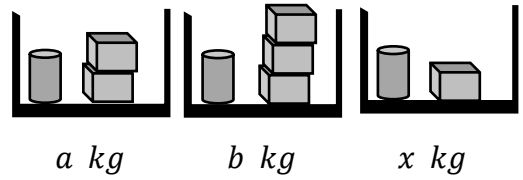
- A)
- B)
- C)
- D)
- E)

31.



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

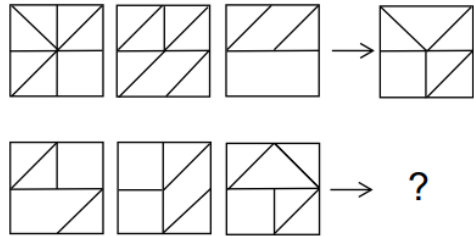
32.



$x = ?$

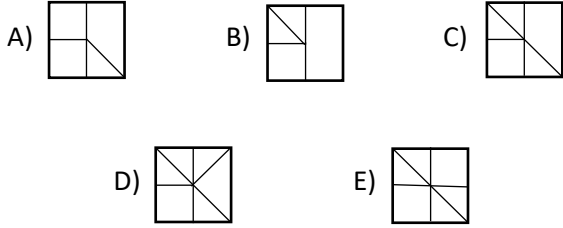
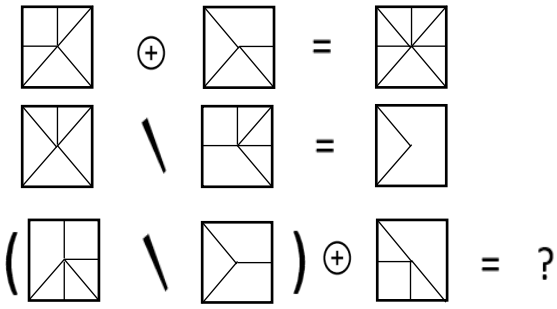
- A)  $a - b$       B)  $\frac{a}{2}$       C)  $2a - b$   
 D)  $8a - 5b$       E)  $\frac{a+2b}{8}$

33.

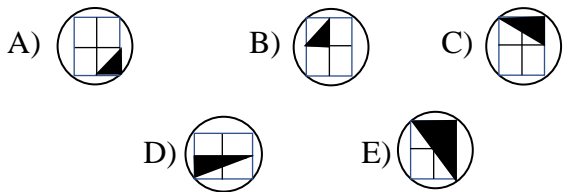
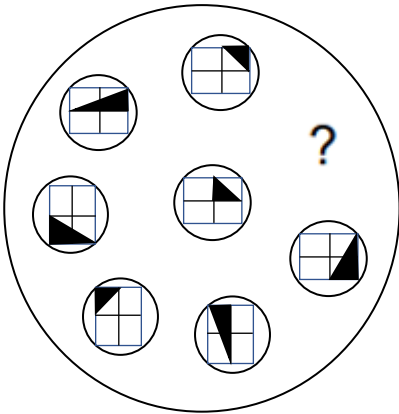


- A)
- B)
- C)
- D)
- E)

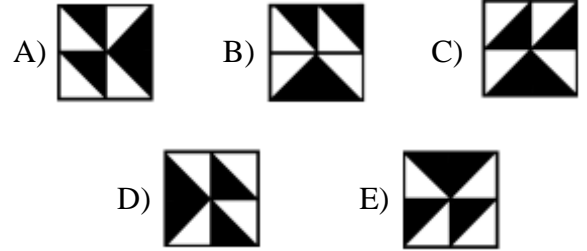
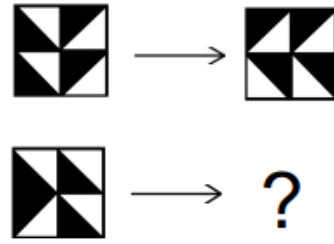
34.



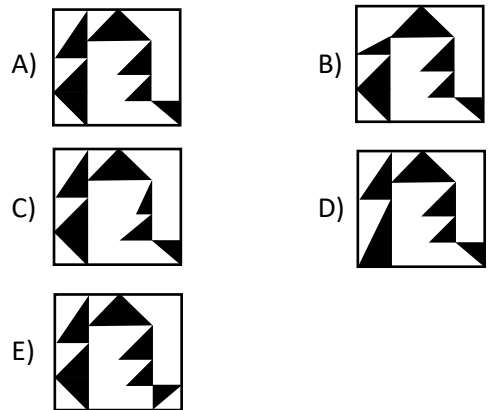
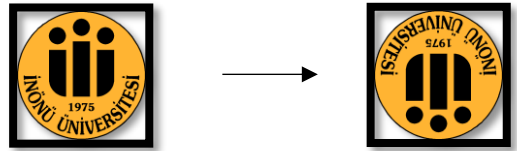
35.

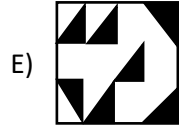
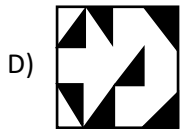
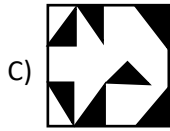
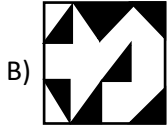
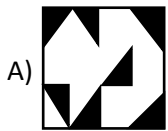
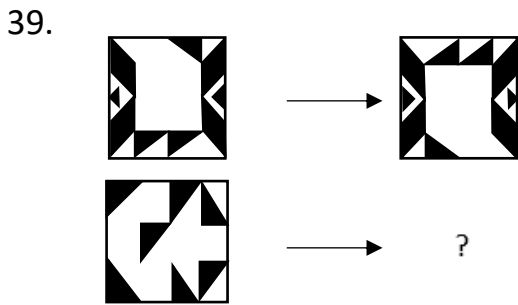
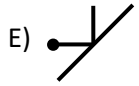


36.

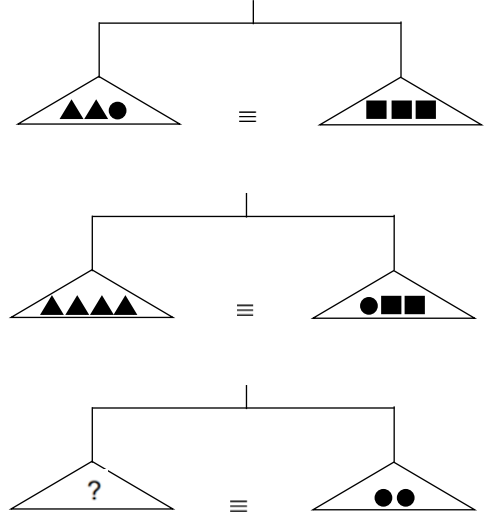


37.





40.



TEST BİTTİ. LÜTFEN CEVAPLARINIZI  
KONTROL EDİNİZ.

TEST IS COMPLETED. PLEASE CHECK  
YOUR ANSWERS.

انتهت أسئلة الاختبار