



1.  $\frac{1 - 5(2 - 3) + 2}{-6(3 - 1) : 2 + 1} = ?$

- A)  $-\frac{8}{3}$  B)  $-2$  C)  $-\frac{8}{5}$  D)  $-\frac{3}{2}$  E)  $-\frac{6}{5}$

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

- A)  $-\frac{2}{3}$  B)  $-\frac{1}{3}$  C)  $\frac{1}{3}$  D)  $\frac{2}{3}$  E)  $\frac{5}{6}$

3.  $\frac{0,1 + 0,03 + 0,002}{0,01 + 0,006 + 0,05} = ?$

- A) 0,5 B) 0,2 C) 1 D) 2 E) 5

4.  $\frac{\sqrt{12 - \sqrt{128}}}{\sqrt{72 - \sqrt{36}}} = ?$

- A)  $\frac{\sqrt{2}}{2}$  B)  $\frac{1}{3}$  C)  $\frac{5\sqrt{2}}{6}$  D)  $\sqrt{2}$  E)  $\frac{3\sqrt{2}}{2}$

5.  $x < 0 < y \Rightarrow |2y - x| - |2x - y| = ?$

- A)  $x + y$  B)  $-x + 3y$  C)  $3x - 3y$   
D)  $-x - y$  E)  $-3x + 3y$

6.  $\frac{1}{x^2 - 4x + 3} : \frac{1}{x - 1} = \frac{1}{2} \Rightarrow x = ?$

- A)  $\frac{3}{7}$  B)  $\frac{7}{3}$  C) 3 D) 4 E) 5



7.  $2\sqrt{7} + 3\sqrt{5} = ?$

- A)  $5\sqrt{2}$       B)  $5\sqrt{3}$       C)  $6\sqrt{2}$   
D)  $6\sqrt{3}$       E)  $7\sqrt{2}$

8.  $f: \mathbb{R} \rightarrow \mathbb{R}, \quad f(x) = (x+1)^2 - 1$   
 $A = \{-1, 0, 1, 2\}, \quad B = \{-4, -2, -1, 1\}$

$$\Rightarrow f(A \cap B) = ?$$

- A)  $f(A) \setminus f(\{-4, 0\})$       B)  $f(B) \setminus \{f(0)\}$   
C)  $f(A) \cap f(B)$       D)  $f(A \cup B) \setminus \{f(1)\}$   
E)  $f(A) \cup f(B)$

9.  $k, l, m \in \mathbb{R}$   
 $2k + l + m = 3$   
 $-k + 2l + 3m = -4$   
 $3k + l - m = -4$   
 $\Rightarrow k + l - m = ?$

- A) -10      B) -8      C) -2      D) 2      E) 8

10.  $a, b \in \mathbb{R},$   
 $9a^2 - 3ab + b^2 - 3\sqrt{3}b = -9$   
 $\Rightarrow ab = ?$

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

11.  $4^x = 6^y \Rightarrow 3^{\frac{2y}{2x-y}} = ?$

- A) 9      B) 8      C) 6      D) 4      E) 3

12.  $\frac{x^2 - y^2}{xy} = 2 \Rightarrow \frac{x^2}{y^2} + \frac{y^2}{x^2} = ?$

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



$$\left. \begin{array}{l} a, b \in \mathbb{R}, \\ a + b = 4, \\ ab = 3 \end{array} \right\} \Rightarrow a^3 + b^3 = ?$$

- A) 36    **B) 28**    C) 22    D) 16    E) 12

14.

$$x \boxplus y = \left\{ \begin{array}{ll} x + 2y, & x < y \\ 2x - y, & x \geq y \end{array} \right\}$$

$$\Rightarrow [1 \boxplus (-1)] \boxplus 2 = ?$$

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

15.

$$3\sqrt{3} - 2 = b \Rightarrow b^2 + 4b - 13 = ?$$

- A) 10**    B) 8    C) 3    D) -3    E) -8

$$16. \left. \begin{array}{l} f, g : \mathbb{R} \rightarrow \mathbb{R} \\ (g \circ f)(x) = 3x - 5 \\ g(x + 1) = 2x + 1 \end{array} \right\} \Rightarrow f(-1) = ?$$

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

$$x \in \mathbb{R}, \frac{\sin 2x}{\sin^3 x + \sin x \cos^2 x} = ?$$

- A) 1    B)  $\sin x$     **C)  $2 \cos x$**     D)  $\tan x$     E)  $2 \cot x$

$$x \in \mathbb{R}, \frac{3 + \cos^2 2x}{2 - \sin 2x} - 2 = ?$$

- A) 1    B)  $\cos x$     C)  $2 \sin x$     **D)  $\sin 2x$**     E)  $\cot 2x$

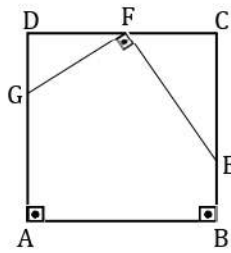
$$19. \quad \left. \begin{array}{l} a = 0 \\ b = -2 \\ c = 3 \end{array} \right\} \Rightarrow b < a < c$$

$$\left. \begin{array}{l} x = \sin 40^\circ, \\ y = \sin 80^\circ, \\ z = \sin 110^\circ \end{array} \right\} \Rightarrow ?$$

A)  $x < y < z$     B)  $x < z < y$     C)  $y < x < z$

D)  $y < z < x$     E)  $z < y < x$

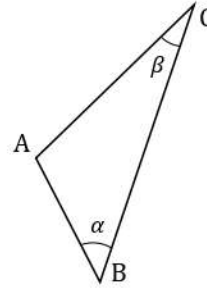
20.



$$\left. \begin{array}{l} [DC] // [AB], [AD] // [BC], \\ [AD] \perp [DC], [GF] \perp [EF], \\ |AD| = |DC|, |DF| = |FC|, \\ |AG| = 3|DG|, \\ m(\widehat{FEC}) = x \\ \Rightarrow \tan x = ? \end{array} \right\}$$

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

21.



$$\left. \begin{array}{l} |AB| = 2 \text{ cm}, |BC| = 7 \text{ cm} \\ |AC| \in \mathbb{N} = \{1, 2, 3, \dots\} \\ \alpha + \beta < 85^\circ \end{array} \right\}$$

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

A) 4    B) 5    C) 6    D) 7    E) 8

$$\left. \begin{array}{l} 0 < 2\alpha \leq 90^\circ \\ \cos 2\alpha = \sin \alpha \end{array} \right\} \Rightarrow \sin 2\alpha + \cos \alpha = ?$$

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

23.  $i = \sqrt{-1}, z = \sqrt{2} - i\sqrt{2} \Rightarrow |z^2 - \bar{z}^2| = ?$

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

24.

$$x \wedge y = \left. \begin{array}{l} x, y \in \mathbb{R}, \\ \left\{ \begin{array}{ll} x, & x < y \\ x + y, & x \geq y \end{array} \right\} \end{array} \right\}$$

$$\Rightarrow (\log_5 90 \wedge \log_3 45) \wedge \log_2 20 = ?$$

- A)  $\log_5 90$       B)  $\log_3 45$       C)  $\log_2 20$   
 D)  $\log_{15} 135$       E)  $\log_{10} 110$

$$\frac{1}{\log_5 x} + \frac{1}{\log_2 x} = \frac{1}{2} \Rightarrow x = ?$$

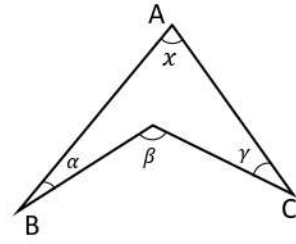
- A) 4      B) 10      C) 20      D) 25      **E) 100**

26.

$$\sum_{k=1}^5 3^k \binom{5}{k} = ?$$

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

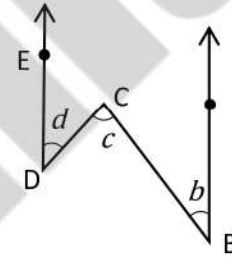
27.



$$\left. \begin{array}{l} \alpha = 25^\circ \\ \beta = 135^\circ \\ \gamma = 40^\circ \end{array} \right\} \Rightarrow x = ?$$

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

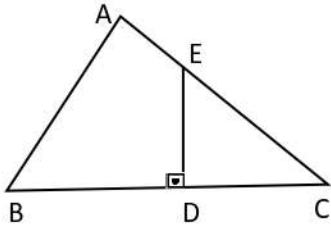
28.



$$\left. \begin{array}{l} [BA // [DE, \\ m(\widehat{ABC}) = b, \\ m(\widehat{BCD}) = c, \\ m(\widehat{CDE}) = d, \\ |b - 2c| = 80^\circ, \\ |c - d| = 30^\circ \end{array} \right\} \Rightarrow c = ?$$

- A)  $50^\circ$       **B)  $55^\circ$**       C)  $60^\circ$       D)  $65^\circ$       E)  $70^\circ$

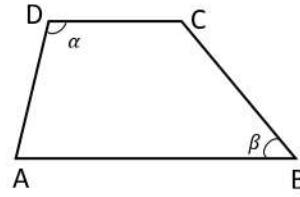
29.



$$\left. \begin{aligned} [DE] \perp [BC], \\ |EC| = 2|AE|, \\ |DE| = 8 \text{ cm}, \\ |BC| = 18 \text{ cm}, \\ A(ABC) = ? \text{ cm}^2 \end{aligned} \right\}$$

- A) 86    B) 97    C) 102    **D) 108**    E) 112

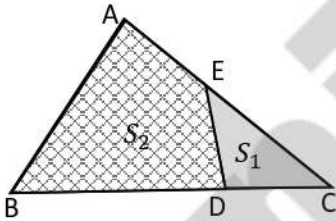
31.



$$\left. \begin{aligned} [DC] // [AB], \\ |DC| = 7 \text{ cm}, \\ |AD| = 8 \text{ cm}, \\ \alpha = 120^\circ, \beta = 45^\circ, \\ A(ABCD) = ? \text{ cm}^2 \end{aligned} \right\}$$

- A)  $4(5 + 8\sqrt{3})$     B)  $8(3 + 4\sqrt{3})$   
**C)  $12(2 + 3\sqrt{3})$**     D)  $4(7 + 8\sqrt{3})$   
 E)  $4(7 + 9\sqrt{3})$

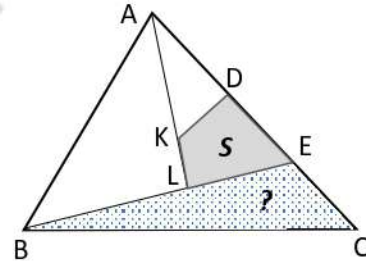
30.



$$\left. \begin{aligned} 5|AC| = 9|EC|, \\ 4|BC| = 10|DC|, \\ A(EDC) = S_1, \\ A(ABDE) = S_2, \end{aligned} \right\} \Rightarrow \frac{S_1}{S_2} = ?$$

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

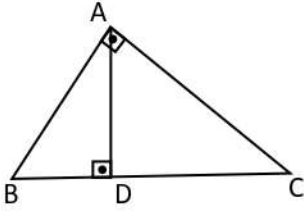
32.



$$\left. \begin{aligned} |AD| = |DE| = |EC|, \\ |AK| = 2|KL|, |BL| = 2|LE|, \\ A(KDEL) = S \end{aligned} \right\} \Rightarrow A(BEC) = ?$$

- A)  $\frac{7}{2}S$     **B)  $\frac{9}{4}S$**     C)  $\frac{13}{7}S$     D)  $S$     E)  $\frac{6}{7}S$

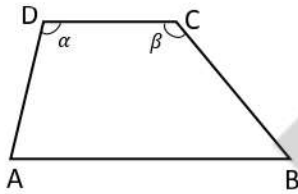
33.



$$\left. \begin{array}{l} [AB] \perp [AC], \\ [AD] \perp [BC], \\ |AB| = 12 \text{ cm}, \\ |BC| = 18 \text{ cm}, \\ |AD| = ? \text{ cm} \end{array} \right\}$$

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

34.



$$\left. \begin{array}{l} [DC] // [AB], \\ |DC| = 6 \text{ cm}, \\ |AD| = 5 \text{ cm}, \\ |AB| = 12 \text{ cm}, \\ \alpha + \beta = 270^\circ \end{array} \right\}$$

$\Rightarrow \cos \alpha = ?$

- A)  $-\frac{2}{3}$    B)  $-\frac{1}{2}$    C)  $-\frac{11}{12}$    **D)  $-\frac{5}{6}$**    E)  $\frac{5}{12}$

$$\lim_{x \rightarrow 2} \frac{|x^2 - 5x + 4| - 2}{|x - 3| - 1} = ?$$

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

$$\left. \begin{array}{l} f: [2, 10] \rightarrow \mathbb{R}, \\ f(x) = 2 \ln(x^2 - 4) - 3 \ln(x - 2) + \ln(x - 2) \end{array} \right\}$$

$$\lim_{a \rightarrow 2^+} e^{f(a)} = ?$$

- A)  $\ln 4$    B) 4   **C) 16**   D)  $e^4$    E)  $e^{16}$



37.

$$\left. \begin{array}{l} f : \mathbb{R} \rightarrow \mathbb{R} \\ f(x) = x^3 - 3x^2 - 4 \end{array} \right\}$$

$$\Rightarrow \lim_{h \rightarrow 0} \frac{f(3+2h) - f(3)}{h} = ?$$

- A) -9    B) -1    C) 0    D) 9    **E) 18**

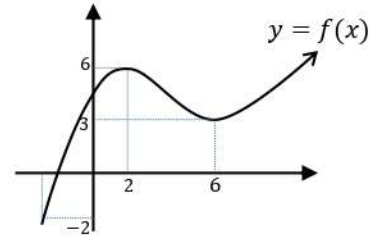
38.

$$f : \mathbb{R} \rightarrow \mathbb{R}, \quad \int_1^4 f(2x - 5) dx = a$$

$$\Rightarrow \int_1^{-\frac{1}{2}} f(4x - 1) dx = ?$$

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

39.



$$\Rightarrow \int_{-2}^6 f'(x)f(x) dx = ?$$

- A) 0    B) 3    **C)  $\frac{9}{2}$**     D) 5    E) 6

$$A = \begin{bmatrix} 1 & 1 \\ 1 & 3 \end{bmatrix} \Rightarrow 2A^{-1} = ?$$

- A)  $\begin{bmatrix} 6 & -3 \\ -2 & 3 \end{bmatrix}$     B)  $\begin{bmatrix} 2 & 1 \\ 2 & 3 \end{bmatrix}$     **C)  $\begin{bmatrix} 3 & -1 \\ -1 & 1 \end{bmatrix}$**   
 D)  $\begin{bmatrix} 3 & 2 \\ -2 & 1 \end{bmatrix}$     E)  $\begin{bmatrix} -2 & -2 \\ 3 & 2 \end{bmatrix}$



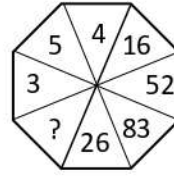
41. I. 148 → 3  
II. 252 → -2  
III. 324 → 9  
IV. 413 → 13  
V. 452 → 4  
VI. 533 → ?
- A) -12 B) -5 C) -3 D) 5 E) 12

42. I. 2361 → 9  
II. 2453 → -2  
III. 3642 → 0  
IV. 4481 → 28  
V. 5683 → 22  
VI. 6873 → ?
- A) 22 B) 18 C) 12 D) -12 E) -20

- 13257 → -4  
26453 → 24  
24198 → -11  
38753 → 69  
34653 → 34  
47353 → 25  
58155 → ?

- A) -13 B) -3 C) 0 D) 3 E) 13

44.

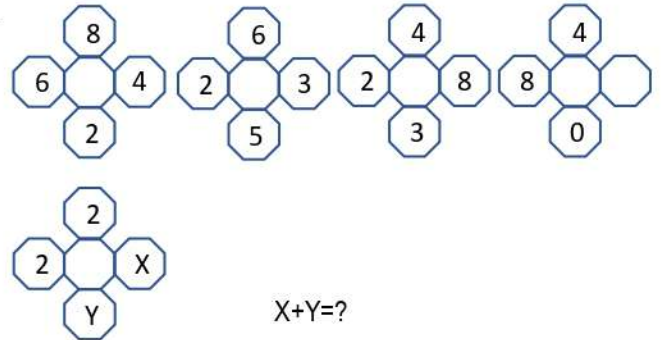


- A) 13 B) 11 C) 8 D) 5 E) 2

- 2 ★ 5 = -6  
3 ★ 4 = 1  
4 ★ 2 = 12  
4 ★ 5 = 6  
5 ★ 8 = 9  
7 ★ 7 = ?

- A) 35 B) 30 C) 25 D) 20 E) -7

46.



X+Y=?

- A) 10 B) 8 C) 6 D) 4 E) 2

47.

			→	-1
			→	3
			→	12
			→	11
			→	?

- A) 9    B) 8    C) 7    D) 6    **E) 5**

48.

1.	2.	3.	4.	5.	6.	7.	...	20.
5	10	17	26	37	50	65	...	?

- A) 359    B) 386    C) 420    **D) 442**    E) 536

49.

I    II    III    IV    ?

V

**A)**

B)

C)

D)

E)

50.

→

→ ?

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

51.

→

→ ?

**A)**

B)

C)

D)

E)

52.

	→	2525
	→	16363
	→	3162
	→	3169
	→	?

- A) 16363    B) 4363    C) 4362    D) 3363    **E) 3362**

53.

	→	
	→	
	→	
	→	
	→	?

- A)    B)    **C)**
- D)    E)

1374	}	{	
3752			
7145			
2451			

$\odot \triangle \square \blacksquare = ?$

- A) 7253**    B) 7235    C) 5273    D) 5723    E) 4173

	}	a	c	h	b					
						e	g	a	h	b
						d	e	h	b	d
						e	d	c	g	h
						d	c	g	a	g

$(\diamond, \square, \odot, \star) = ?$

- A) (e,d,g,c)    B) (c,d,h,g)    C) (g,a,d,h)
- D) (d,a,g,b)**    E) (d,g,a,h)

4	1	3	4
3	4	1	7
2	0	4	6
1	2	0	3
9	2	5	5
8	4	3	6
X	3	2	6

X = ?

- A) 4    B) 5    C) 6    D) 7    E) 8

57.

1475	}	{	○ ■ ◆ ●
6542			▲ ● ○ ☆
7826			● ☆ ● ◆
4718			● ○ ▲ ■

2846 = ?

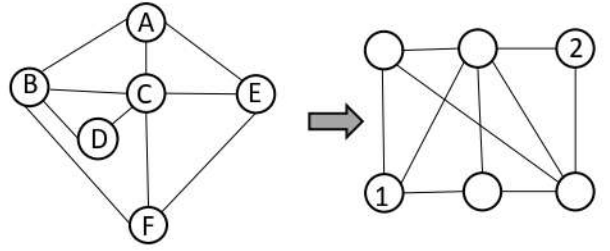
- A) ○ ■ ◆ ○    B) ○ ■ ◆ ▲    C) ◆ ■ ● ●
- D) ○ ■ ◆ ●    E) ◆ ○ ■ ●

58.

→   
 → cab  
 → ?

- A) 152    B) 215    C) 251    D) 512    E) 521

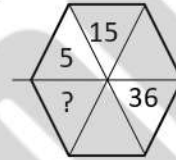
59.



(1,2) = ?

- A) (E,A)    B) (F,E)    C) (E,D)    D) (F,D)    E) (A,D)

60.

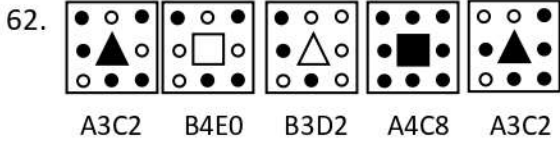


- A) 108    B) 99    C) 69    D) 59    E) 30

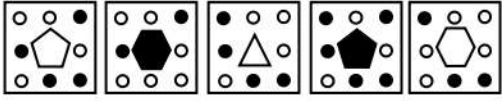
61.

A)    B)    C)

D)    E)



A3C2 B4E0 B3D2 A4C8 A3C2



B5E0 A6D4 B3E0 A5C2 ?

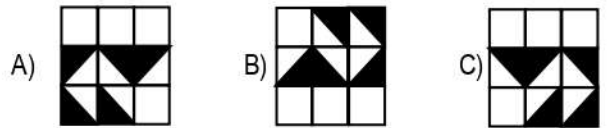
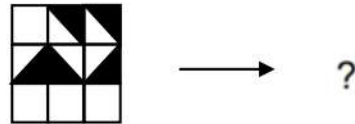
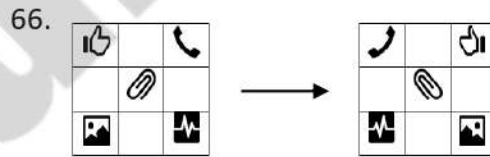
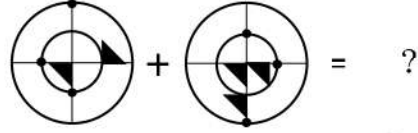
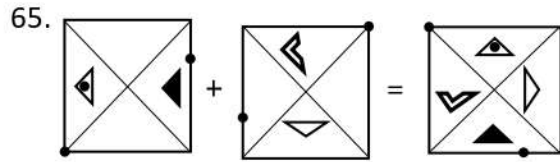
A) B6C2 B) B6D2 C) A6C2 D) A6D2 E) A6E0

63.  $b+d = 10$   
 $a+b+e = 25$   
 $a+c+d = 22$   
 $d+e = 3$   
 $b+c+e = 13$   
 $a+d+e = ?$

A) 12 B) 15 C) 16 D) 19 E) 23

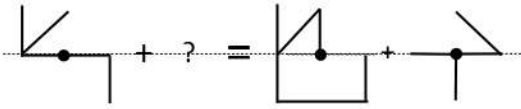
$4 \times 6$   
 $3 \times 5 = 6/15$   
 $6 \times 17$   
 $5 \times 8$   
 $2 \times 7 = ?$

A) 2/28 B) 3/14 C) 2/30 D) 3/24 E) 2/20



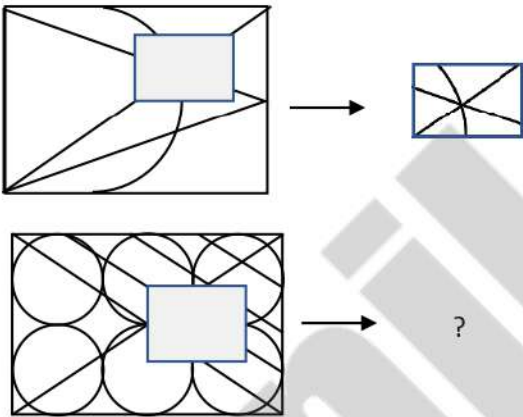


67.



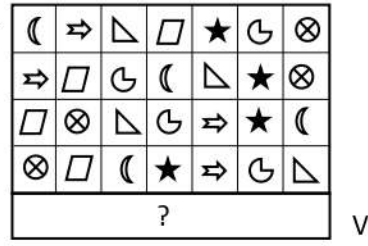
- A) B) C) D) E)

68.



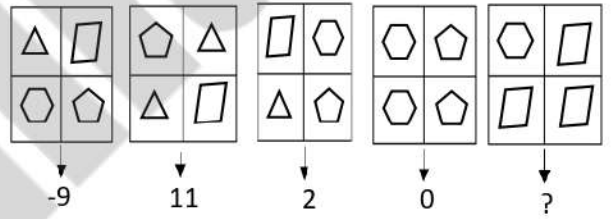
- A) B) C) D) E)

69.



- A) B) C) D) E)

70.



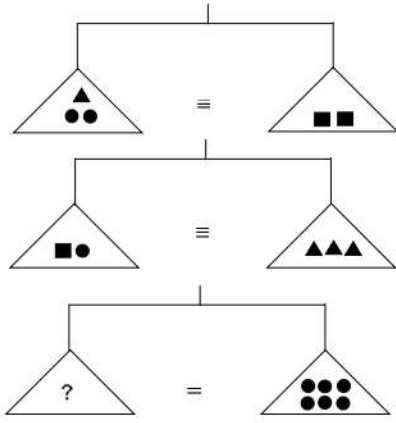
- A) 12 B) 8 C) 4 D) -4 E) -8

5		6		6		8	
	24		8		10		Y
I		II		III		IV	

X+Y=?

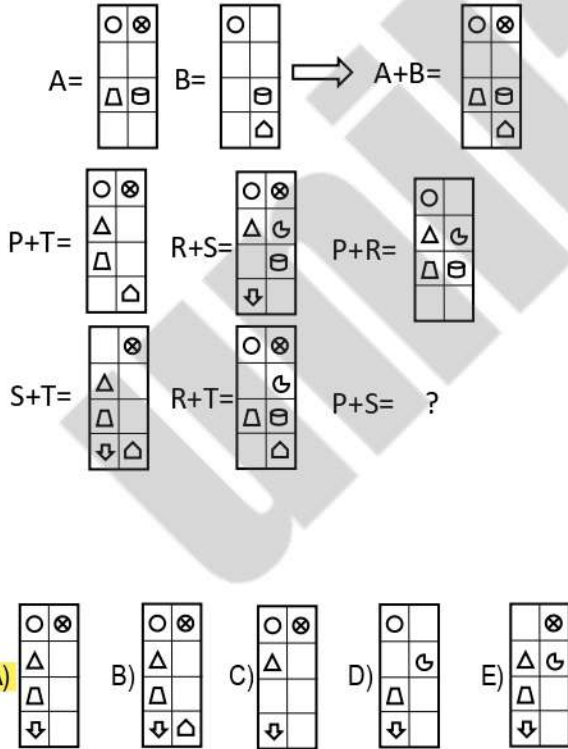
- A) 18 B) 19 C) 20 D) 22 E) 24

72.

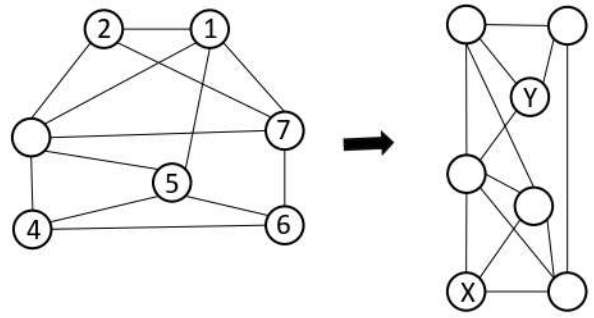


- A) ▲▲■●      B) ▲▲▲●●  
 C) ▲▲▲▲■      D) ▲▲▲■  
 E) ▲■●●

73.



74.



- (X, Y)=?  
 A) (4, 6) B) (2, 4) C) (1, 4) D) (6, 2) E) (4, 2)

75.

I.	1 2 3 4 5 6 7
II.	1 3 5 7 2 4 6
III.	1 4 7 3 6 2 5
IV.	1 5 2 6 3 7 4
V.	?

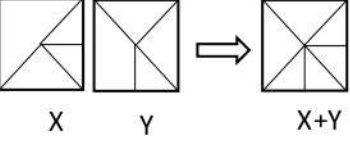
- A) 1 6 4 2 7 5 3      B) 1 6 4 7 2 5 3  
 C) 1 6 4 2 7 3 5      D) 1 6 2 4 7 5 3  
 E) 1 6 4 5 7 2 3

76.

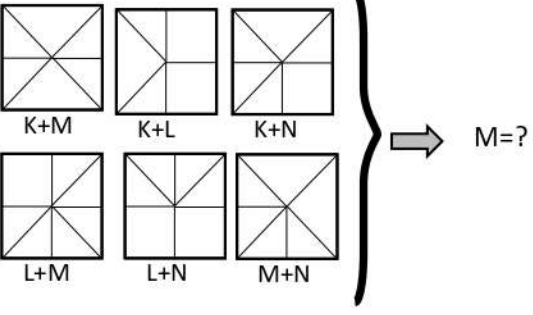
+	⊗	●	⬠	⬡
⬠	10	13	A	9
⬡	5	8	9	B
⊗	6	9	10	5
●	9	C	13	8

- A+B-2C=?  
 A) -8 B) -6 C) -2 D) 6 E) 8



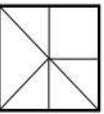

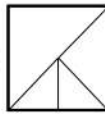
77. 

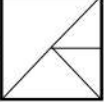

X      Y      X+Y





K+M    K+L    K+N    }    M=?

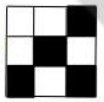

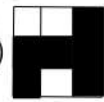
L+M    L+N    M+N

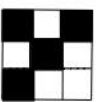
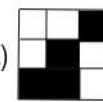
A)     B)     C) 

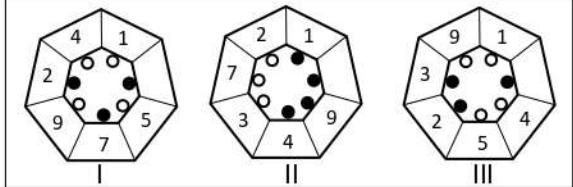
D)     E) 

78. 

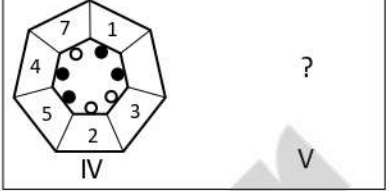


A)     B)     C) 

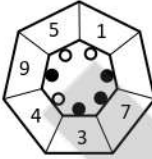
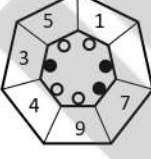
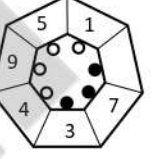
D)     E) 

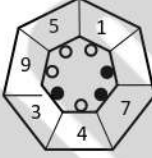
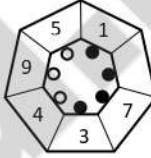
79. 

I      II      III



IV      ?      V

A)     B)     C) 

D)     E) 

3	6	8	16	18	36	38	X
---	---	---	----	----	----	----	---

2	8	4	10	6	12	8	Y
---	---	---	----	---	----	---	---

X-Y=?

- A) 13    B) 33    C) 53    D) 62    E) 72

SINAV BİTTİ. LÜTFEN CEVAPLARINIZI KONTROL EDİNİZ.

END OF THE EXAM. PLEASE CHECK YOUR ANSWERS.