



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

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

8.
$$\left. \begin{array}{l} f: \mathbb{R} \rightarrow \mathbb{R}, \quad f(x) = (x+1)^2 - 1 \\ A = \{-1, 0, 1, 2\}, \quad B = \{-4, -2, -1, 1\} \end{array} \right\} \Rightarrow f(A \cap B) = ?$$

- 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.
$$\left. \begin{array}{l} k, l, m \in \mathbb{R} \\ 2k + l + m = 3 \\ -k + 2l + 3m = -4 \\ 3k + l - m = -4 \end{array} \right\} \Rightarrow k + l - m = ?$$

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

10.
$$\left. \begin{array}{l} a, b \in \mathbb{R}, \\ 9a^2 - 3ab + b^2 - 3\sqrt{3}b = -9 \end{array} \right\} \Rightarrow ab = ?$$

- 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



$$13. \left. \begin{array}{l} a, b \in \mathbb{R}, \\ a + b = 4, \\ ab = 3 \end{array} \right\} \Rightarrow a^3 + b^3 = ?$$

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

$$14. \left. \begin{array}{l} x, y \in \mathbb{R}, \\ x \boxplus y = \begin{cases} x + 2y, & x < y \\ 2x - y, & x \geq y \end{cases} \end{array} \right\}$$

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

- 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) $\frac{5}{2}$

$$17. x \in \mathbb{R}, \frac{\sin 2x}{\sin^3 x + \sin x \cos^2 x} = ?$$

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

$$18. x \in \mathbb{R}, \frac{3 + \cos^2 2x}{2 - \sin 2x} - 2 = ?$$

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

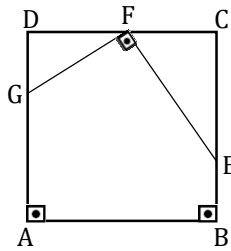
$$19. \quad \left. \begin{array}{l} a = 0 \\ b = -2 \\ c = 3 \end{array} \right\} \Rightarrow b < a < c$$

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

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

D) $y < z < x$ E) $z < y < x$

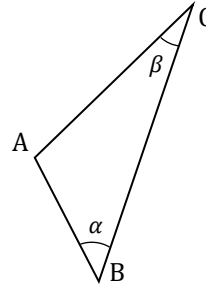
20.



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

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

$$22. \quad \left. \begin{array}{l} 0 < 2\alpha \leq 90^\circ \\ \cos 2\alpha = \sin \alpha \end{array} \right\} \Rightarrow \sin 2\alpha + \cos \alpha = ?$$

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

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

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

24.

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

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

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

$$25. \frac{1}{\log_5 x} + \frac{1}{\log_2 x} = \frac{1}{2} \Rightarrow x = ?$$

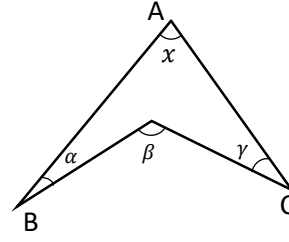
- A) 4 B) 10 C) 20 D) 25 E) 100

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) $4^6 - 1$

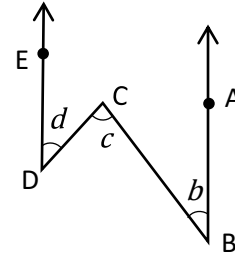
27.



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

- A) 60° B) 65° C) 70° D) 75° E) 80°

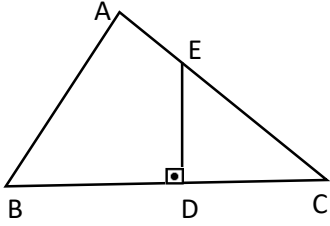
28.



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

- A) 50° B) 55° C) 60° D) 65° E) 70°

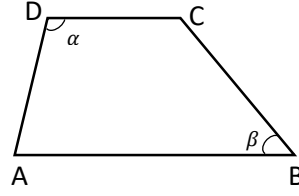
29.



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

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

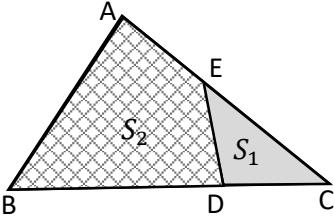
31.



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

- 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) $4(7 + 9\sqrt{3})$

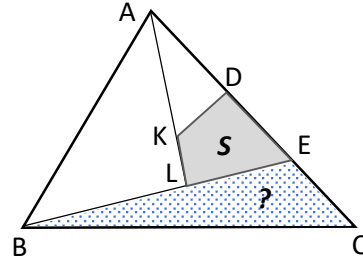
30.



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

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

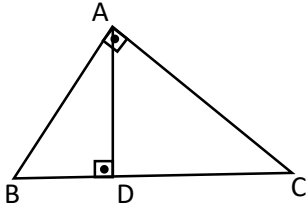
32.



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

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

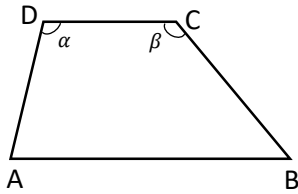
33.



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

- 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) $\frac{5}{12}$

35.
$$\lim_{x \rightarrow 2} \frac{|x^2 - 5x + 4| - 2}{|x - 3| - 1} = ?$$

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

36.
$$\left. \begin{array}{l} f: [2, 10] \rightarrow \mathbb{R}, \\ f(x) = 2 \ln(x^2 - 4) - 3 \ln(x - 2) + \ln(x - 2) \end{array} \right\}$$

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

- 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**

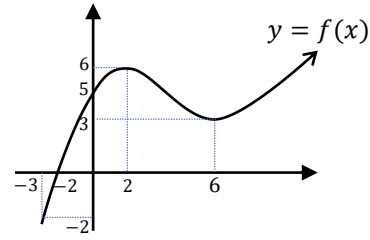
38.

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

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

- 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

$$40. \quad A = \begin{bmatrix} 1 & 1 \\ 1 & 3 \end{bmatrix} \Rightarrow 2A^{-1} = ?$$

- 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) $\begin{bmatrix} -2 & -2 \\ 3 & 2 \end{bmatrix}$

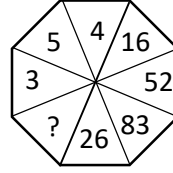


41. I. 148 → 3
II. 252 → -2
III. 324 → 9
IV. 413 → 13
V. 452 → 4
VI. 533 → ?
- A) -12 B) -5 C) -3 D) 5 E) 12

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

43. 13257 → -4
26453 → 24
24198 → -11
38753 → 69
34653 → 34
47353 → 25
58155 → ?
- A) -13 B) -3 C) 0 D) 3 E) 13

44.

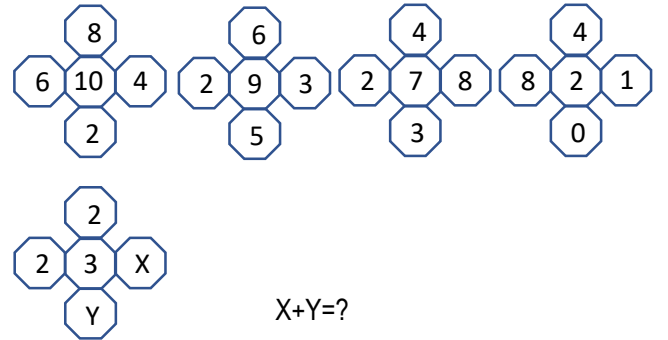


- A) 13 B) 11 C) 8 D) 5 E) 2

45. 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.

- 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.

- 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)

54.

| | | | |
|------|---|---|----------|
| 1374 | } | } | ○★▲□ |
| 3752 | | | ■○□△ |
| 7145 | | | △▲□★ |
| 2451 | | | ★■○▲ |
| | | | ○△□■ = ? |

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

55.

| | | | | | | | | | | | |
|-----------|---|---|---|---|---|---|---|---|---|---|---|
| ● * ○ ◇ □ | } | } | a | } | } | } | | | | | |
| □ * ◇ * ◇ | | | c | | | | c | | | | |
| * ○ □ ● * | | | e | | | | g | h | b | | |
| * ◇ ● * ○ | | | b | | | | a | h | b | d | h |
| ◇ ◇ * ○ ● | | | d | | | | b | g | d | a | c |
| | | | e | d | c | g | | | | | |
| | | | d | c | g | h | | | | | |

(◇, □, ○, *) = ?

- 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)

56.

| | | | |
|---|---|---|---|
| 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 | | | ● ◎ ▲ ■ |

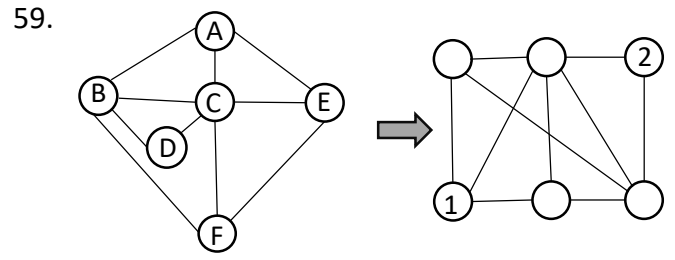
2846 = ?

- A) ● ■ ◆ ◎ B) ● ■ ◆ ▲ **C) ◆ ■ ● ●**
 D) ● ■ ◆ ● E) ◆ ● ■ ●

58.

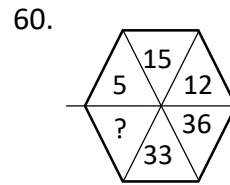
| | | |
|--|---|-----|
| <div style="border: 1px solid black; padding: 5px; display: inline-block;">abc</div> | → | acb |
| <div style="border: 1px solid black; padding: 5px; display: inline-block;">abc</div> | → | cab |
| <div style="border: 1px solid black; padding: 5px; display: inline-block;">251</div> | → | ? |

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



(1,2)=?

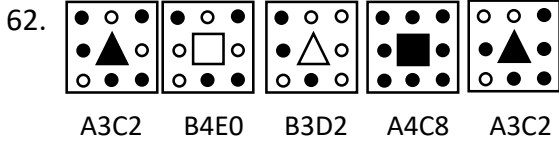
- A) (E,A) B) (F,E) **C) (E, D)** D) (F, D) E) (A,D)



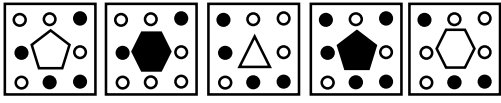
- A) 108 **B) 99** C) 69 D) 59 E) 30

61.

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



A3C2 B4E0 B3D2 A4C8 A3C2



B5E0 A6D4 B3E0 A5C2 ?

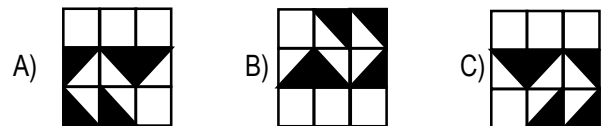
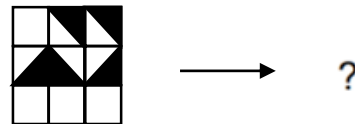
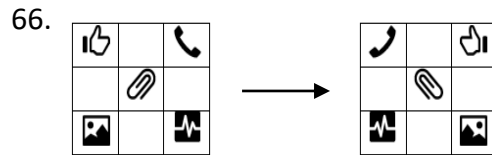
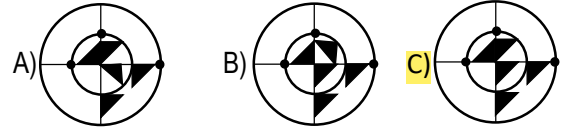
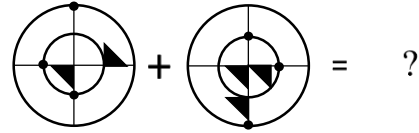
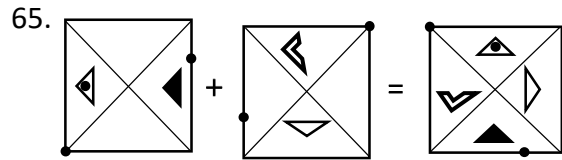
A) B6C2 B) B6D2 C) A6C2 D) A6D2 E) A6E0

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

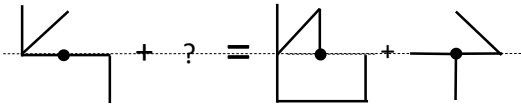
A) 12 B) 15 C) 16 D) 19 E) 23

64. $4 \times 6 = 24/21$
 $3 \times 5 = 6/15$
 $6 \times 17 = 720/153$
 $5 \times 8 = 120/36$
 $2 \times 7 = ?$

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

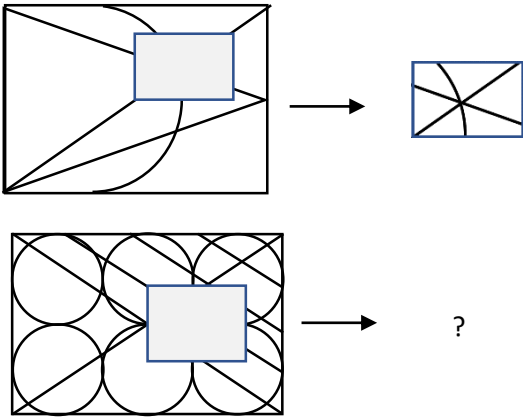


67.



- A) B) C) D) E)

68.



- A) B) C) D) E)

69.

| | | | | | | | |
|---|---|---|---|---|---|---|-----|
| (| ⇒ | △ | □ | ★ | ☉ | ⊗ | I |
| ⇒ | □ | ☉ | (| △ | ★ | ⊗ | II |
| □ | ⊗ | △ | ☉ | ⇒ | ★ | (| III |
| ⊗ | □ | (| ★ | ⇒ | ☉ | △ | IV |
| ? | | | | | | | V |

- A) B) C) D) E)

70.

| | | | | |
|-----|-----|-----|-----|-----|
| △ □ | □ △ | □ □ | □ □ | □ □ |
| □ □ | △ □ | △ □ | □ □ | □ □ |
| -9 | 11 | 2 | 0 | ? |

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

71.

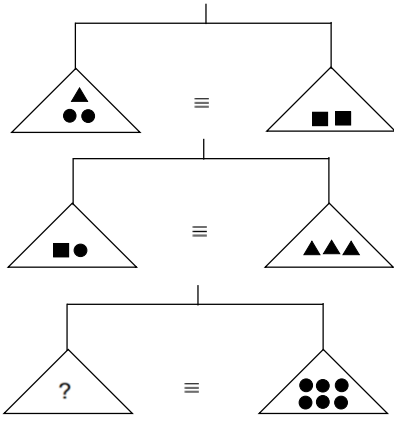
| | | | |
|--------|--------|--------|--------|
| 5 6 16 | 6 3 10 | 6 4 14 | 8 X 18 |
| 8 4 24 | 3 9 8 | 4 8 10 | 4 7 Y |

I II III IV

X+Y=?

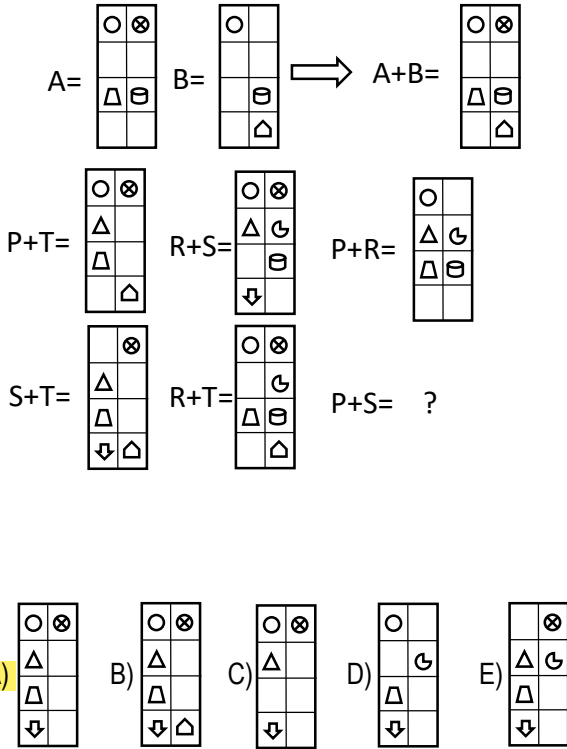
- A) 18 B) 19 C) 20 D) 22 E) 24

72.

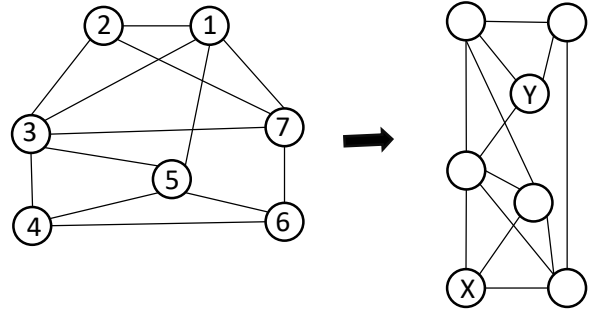


- A) ▲▲■● B) ▲▲▲■●●
C) ▲▲▲▲■ D) ▲▲▲■
 E) ▲■●●

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. | ? |

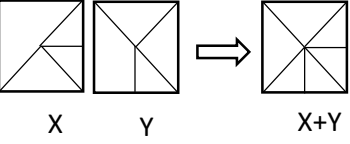
- A) 1 6 4 2 7 5 3** B) 1 6 4 7 2 5 3
 C) 1 6 4 2 7 3 5 D) 1 6 2 4 7 5 3
 E) 1 6 4 5 7 2 3

76.

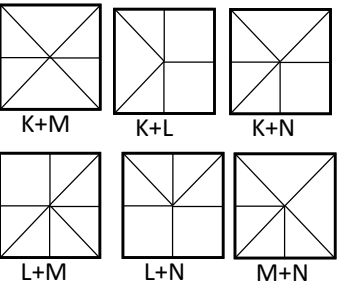
| | | | | |
|---|----|----|----|---|
| + | ⊗ | ● | ⬠ | ⬡ |
| ⬠ | 10 | 13 | A | 9 |
| ⬡ | 5 | 8 | 9 | B |
| ⊗ | 6 | 9 | 10 | 5 |
| ● | 9 | C | 13 | 8 |

A+B-2C=?

- A) -8 **B) -6** C) -2 D) 6 E) 8

77. 

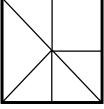
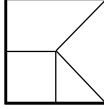
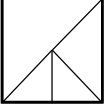
X Y X+Y

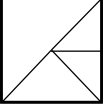
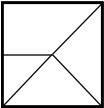


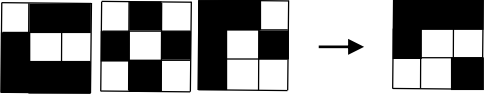
K+M K+L K+N

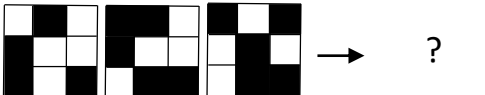
L+M L+N M+N




M=?



A)  B)  C) 

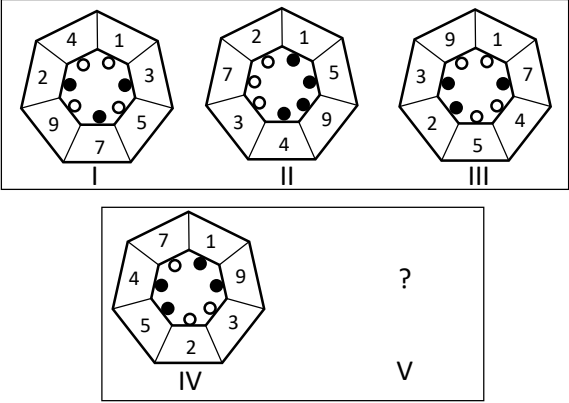
D)  E) 

78. 



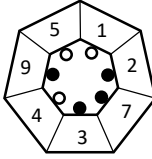
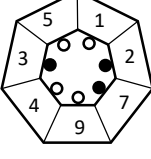
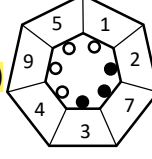
A)  B)  C) 

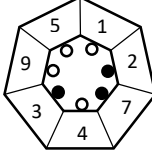
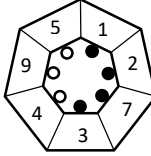
D)  E) 

79. 

I II III

IV V

A)  B)  C) 

D)  E) 

80.

| | | | | | | | |
|---|---|---|----|----|----|----|---|
| 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.