

$$1. \quad a * b = \begin{cases} a + b & a > b \\ a - b & a \leq b \end{cases}$$

$$(1 * 1) * (2 * 1) = ?$$

$$i) \quad 1 * 1 = a - b = 1 - 1 = 0$$

$$a = b$$

$$ii) \quad 2 * 1 = 2 + 1 = 3$$

$$a > b$$

$$iii) \quad 0 * 3 = 0 - 3 = -3$$

$$a < b$$

Cevap: C

$$2. \quad (x, y) \otimes (z, t) = (x.t + 1, y.z + x)$$

$$(-3, 2) \otimes \left(4, \frac{1}{2}\right) = \left(-3 \cdot \frac{1}{2} + 1, 2 \cdot 4 - 3\right)$$

$$= \left(-\frac{3}{2} + 1, 8 - 3\right)$$

$$= \left(-\frac{1}{2}, 5\right)$$

Cevap: E

$$3. \quad a \square b = \sqrt[4]{a \cdot b}$$

$$a \oplus b = a^2 b - 2(a \oplus b) + 3$$

$$3(a \oplus b) = a^2 b + 3$$

$$a \oplus b = \frac{a^2 b + 3}{3} \text{ dir.}$$

$$i) \quad 1 \oplus 3 = \frac{1^2 \cdot 3 + 3}{3} = \frac{6}{3} = 2$$

$$ii) \quad 2 \square 8 = \sqrt[4]{2 \cdot 8}$$

$$= \sqrt[4]{16} = \sqrt[4]{2^4} = 2 \text{ bulunur.}$$

Cevap: C

$$4. \quad \frac{a+b}{2} \Delta (2a-b) = a^b$$

$$2 \Delta 5 = ?$$

$$i) \quad \frac{a+b}{2} = 2$$

$$ii) \quad 2a - b = 5$$

$$a + b = 4$$

i ve ii'den

$$a + b = 4$$

$$+ \quad 2a - b = 5$$

$$\hline 3a = 9$$

$$a = 3 \Rightarrow b = 1$$

O halde

$$2 \Delta 5 = 3^1 = 3 \text{ bulunur.}$$

Cevap: A

$$5. \quad \left(\frac{a+2}{2}\right) \otimes \left(\frac{b}{3}\right) = a \cdot b$$

$$3 \otimes 2 = ?$$

$$\frac{a+2}{2} = 3, \quad \frac{b}{3} = 2$$

$$a + 2 = 6$$

$$b = 6$$

$$a = 4$$

$$3 \otimes 2 = a \cdot b = 4 \cdot 6 = 24 \text{ bulunur.}$$

Cevap: D

6. I. $(a, b) \odot (c, d) = (ad - c, bd - c)$
 $(a, b) \square (c, d) = \left(\frac{a-c}{b-d}, \frac{a+c}{b+d} \right)$
 $[(8, 3) \square (7, 2)] \odot (1, 1) = ?$
 ii) $(8, 3) \square (7, 2) = \left(\frac{8-7}{3-2}, \frac{8+7}{3+2} \right)$
 $\begin{matrix} a, b & c, d \\ & \end{matrix}$
 $= (1, 3)$
 ii) $(1, 3) \odot (1, 1) = (1 \cdot 1 - 1, 3 \cdot 1 - 1)$
 $\begin{matrix} (a, b) & (c, d) \\ & \end{matrix}$
 $= (0, 2)$

Cevap: C

7. $a * b = \begin{cases} a - 2b & a < b \\ 3ab & b \leq a \end{cases}$
 $[(-1) * 0] * (-2)$
 i) $(-1) * 0 = a - 2b = -1 - 2 \cdot 0 = -1$
 $a < b$
 ii) $(-1) * (-2) = 3ab = 3(-1) \cdot (-2) = 6$
 $a > b$

Cevap: D

8. $a \oplus b = a \cdot b - (a \oplus b) - 1$
 $2(a \oplus b) = a \cdot b - 1$
 $a \oplus b = \frac{a \cdot b - 1}{2}$
 $3 \oplus 7 = \frac{3 \cdot 7 - 1}{2} = \frac{20}{2} = 10$

Cevap: D

9. $\frac{a}{3} \oplus (b + 1) = a \cdot b$
 $\downarrow \quad \swarrow$
 $2 \oplus 3 = ?$
 $\frac{a}{3} = 2 \Rightarrow a = 6$
 $b + 1 = 3 \Rightarrow b = 2$
 $2 \oplus 3 = a \cdot b = 6 \cdot 2 = 12$

Cevap: E

TASARI EĞİTİM YAYINLARI

10. $a \Delta b = a \cdot b$
 $a * b = (a + 2) \cdot b$
 $(2 \Delta 3) * 5 = ?$
 - $2 \Delta 3 = 2 \cdot 3 = 6$
 - $6 * 5 = (6 + 2) \cdot 5$
 $= 8 \cdot 5 = 40$ bulunur.

Cevap: E

11. $a \otimes b = \begin{cases} a^3 + b^3 & a < b \\ 3ab - 15 & a \geq b \end{cases}$
 $(-2) \otimes (3 \otimes 2) = ?$
 i) $3 \otimes 2 = 3ab - 15 = 3 \cdot 3 \cdot 2 - 15 = 3$
 ii) $(-2) \otimes 3 = a^3 + b^3 = (-2)^3 + (3)^3$
 $= -8 + 27$
 $= 19$ bulunur.

Cevap: E

12. $\Delta \cdot \textcircled{b} = 30$

$\textcircled{b} \cdot \textcircled{c} = 45 \quad \min(\Delta + \textcircled{c}) = ?$

$\Delta = a \quad \textcircled{b} = b \quad \text{ve} \quad \textcircled{c} = c \quad \text{olsun} \quad a, b, c \in \mathbb{Z}^+$

$2 \leftarrow \textcircled{a} \cdot \textcircled{b} = 30$

$\textcircled{b} \cdot \textcircled{c} = 45$
 $\downarrow \quad \downarrow$
15 3

a ve c'nin en küçük olması için b büyük olmalı

$(a + c)_{\min} = 2 + 3 = 5$

Cevap: B

13. $a \circ b = a - b$

$a * b = \frac{a}{b}$

$a \Delta b = a \cdot b$

$9 \circ [(6 * 3) \Delta 2] = 9 \circ [2 \Delta 2]$

$6 * 3 = \frac{6}{3} = 2$

$2 \Delta 2 = 2 \cdot 2 = 4$

$9 \circ 4 = 9 - 4 = 5$

Cevap: C

14.

$$a * b = \begin{cases} a \cdot b - a^b & a < b \\ b^a - \frac{a}{b} & a \geq b \end{cases}$$

$(2 * 3) * (1 * 1)$

i) $2 * 3 = 2 \cdot 3 - 2^3 = 6 - 8 = -2$

$a < b$

ii) $1 * 1 = 1^1 - \frac{1}{1} = 1 - 1 = 0$

$a = b$

$-2 * 0 = -2 \cdot 0 - (-2)^0$

$a < b = 0 - 1$

$= -1 \text{ bulunur.}$

Cevap: B

TASARI EĞİTİM YAYINLARI

15. I. $2 \square 3 = 3 \rightarrow \frac{2 \cdot 3}{2} = 3$

II. $3 \square 4 = 6 \rightarrow \frac{3 \cdot 4}{2} = 6$

III. $4 \square 5 = 10$

 \square işlemi sayıların çarpımının yarısı olmalı

O halde

IV. $5 \square 6 = \frac{5 \cdot 6}{2} = 15 \text{ bulunur.}$

Cevap: C

16. $2^{x \otimes y} = 4x + 5y$

$3 \otimes 4 = ?$

$2^{3 \otimes 4} = 4 \cdot 3 + 5 \cdot 4 = 12 + 20 = 32$

$2^{3 \otimes 4} = 2^5$

$3 \otimes 4 = 5 \text{ bulunur.}$

Cevap: B

17. $x \otimes y = -2(y \triangle x) + 2y$

$y \triangle x = 3y - 2x$

$4 \otimes 3 = ?$

$4 \otimes 3 = -2(3 \triangle 4) + 2.3$

$3 \triangle 4 = 3.3 - 2.4 = 9 - 8 = 1$

O halde

$= -2.1 + 6$

$= 4$ olur.

Cevap: E

18. $a \ominus b = a^2 + 2b - ab$

$a \ominus b = b^2 + 2a - ab$

$(1 \ominus 0) \ominus (1 \ominus (-1))$

i) $1 \ominus 0 = 1^2 + 2.0 - 1.0 = 1$

ii) $1 \ominus (-1) = 1^2 + 2.(-1) - 1.(-1) = 1 - 2 + 1 = 0$

iii) $1 \ominus 0 = 0^2 + 2.1 - 0.1$

$= 2$

Cevap: D

19. $a * b = \begin{cases} a - b & a \leq b \\ a + b & a > b \end{cases}$

$(2 * 0) * (1 * 3)$

i) $2 * 0 = a + b = 2 + 0 = 2$

$a > b$

ii) $1 * 3 = a - b = 1 - 3 = -2$

$a < b$

iii) $2 * (-2) = a + b = 2 - 2 = 0$

$a > b$

Cevap: C

20. $X \star y = x^y$

$X \triangle y = x + y$

$X \star (x \triangle 1) = 81 \Rightarrow x = ?$

i) $x \triangle 1 = x + 1$

ii) $x \star (x + 1) = x^{(x+1)} = 81 \Rightarrow x = 3$ bulunur.

$3^4 = 81$ 'dir.

Cevap: B