1. $x \triangle y = \sqrt{x}(y+1) + \sqrt{y}(x+1)$

$8 \triangle 18 = \sqrt{8}(18+1) + \sqrt{18}(8+1)$

$= 2\sqrt{2}.19 + 3\sqrt{2}.9$

$= 38\sqrt{2} + 27\sqrt{2}$

$= 65\sqrt{2}$ olur.

Cevap: C

2. $\frac{7}{a \triangle b} = \frac{a+b}{a-b} \Rightarrow \frac{7}{11 \triangle 3} = \frac{11+3}{11-3}$

$\frac{7}{11 \triangle 3} = \frac{14}{8}$

$14(11 \triangle 3) = 7.8$

$11 \triangle 3 = 4$ olur.

Cevap: E

3. • $\sqrt{m} = 3 \Rightarrow m = 9$

• $3^n = 243 \Rightarrow n = 5$

$\Rightarrow \sqrt{m} \star 3^n = m^2 - 2mn + n^2 = (m-n)^2$

$3 \star 243 = (9-5)^2 = 16$ olur.

Cevap: C

4. • $\frac{1}{a+1} = 2 \Rightarrow 2a + 2 = 1$

$2a = -1$

$a = \frac{-1}{2}$

• $\frac{1}{b-2} = 3 \Rightarrow 3b - 6 = 1$

$3b = 7$

$b = \frac{7}{3}$

$\Rightarrow 2 \boxdot 3 = 4.\left(\frac{-1}{2}\right) - 3.\frac{7}{3} + 2$

$= -2 - 7 + 2$

$= -7$ olur.

Cevap: A

5. $\underbrace{(x+3)}_{a} \square \underbrace{(y-2)}_{5} = x + 2y$

$\Rightarrow x = a - 3$ ve $y = 7$ yazılır.

O halde $a \square 5 = a - 3 + 2.7 = 25$

$a + 11 = 25$

$a = 14$ olur.

Cevap: C

6. $\underbrace{(3a+2b)}_{4} \triangle \underbrace{(2a+3b)}_{6} = (a+b)^2 = 2^2 = 4$

$3a + 2b = 4$

$+ \quad 2a + 3b = 6$

$5(a+b) = 10 \Rightarrow a + b = 2$

Cevap: B

7. $\frac{-24}{5} \boxtimes \left(\frac{3}{5} \boxtimes \frac{-1}{4}\right)$

$\frac{-24}{5} \boxtimes \left(\frac{\frac{3}{5}}{\frac{-1}{4}}\right)$

$\frac{-24}{5} \boxtimes \frac{-12}{5} = \frac{\frac{-12}{5}}{\frac{-24}{5}} = \frac{-12}{5} \cdot \frac{5}{-24} = \frac{1}{2}$ olur.

Cevap: D

8. $\frac{1}{4} \square \left(\frac{1}{2} \square \frac{3}{4}\right) = \frac{1}{4} \square \left(\frac{1}{2} + \frac{3}{4} - 1\right)$

$= \frac{1}{4} \square \frac{1}{4}$

$= \frac{1}{4} + \frac{1}{4}$

$= \frac{2}{4} = \frac{1}{2}$ olur.

Cevap: A

9. $\dfrac{x^{\triangle 5}}{x^{\boxed{5}}} = \dfrac{\frac{1}{x}\cdot\frac{1}{x^2}\cdots\frac{1}{x^5}}{x.x^2\ldots x^5} = \dfrac{\frac{1}{x^{15}}}{x^{15}} = \dfrac{1}{x^{30}} = x^{-30}$

Cevap: D

10. $\dfrac{13}{m} \triangle \dfrac{20}{n+2} = m - 2n$

$m = 13$ ve $n = 3$ için $\dfrac{13}{13} \triangle \dfrac{20}{3+2} = 13 - 2.3$

$1 \triangle 4 = 7$ olur.

Cevap: B

11. $3(n) + 2 = (n+1) - 4 + 7$

$3(2n - 1) + 2 = (2(n + 1) - 1) - 4 = 7$

$6n - 3 + 2 = (2n - 3) + 7$

$6n - 1 = 2(2n - 3) - 1 + 7$

$6n - 1 = 4n$

$2n = 1$

$n = \dfrac{1}{2}$

Cevap: D

12. $9 \bigstar 2 = 110000000 = 11.10^7$

$3 \bigstar 0 = 3000 = 3.10^3$

$3 \bigstar 1 = 400 = 4.10^2$

$\Rightarrow 11.10^7.3.10^3.4.10^2 = 132.10^{12} \rightarrow$ 15 basamaklıdır.

Cevap: C