

TEST 2 Üslü Sayılar

1. $8^6 \cdot 25^9 = (2^3)^6 \cdot (5^2)^9$
 $= 2^{18} \cdot 5^{18} = (10)^{18} = 10^{18}$
 $\Rightarrow 18 + 1 = 19$ basamaklıdır.

Cevap: A

2. $12^x = 18 \Rightarrow (2^2 \cdot 3)^x = 18$
 $\Rightarrow 2^{2x} \cdot 3^x = 18$ 'dir.
 $2^{2x+1} \cdot 3^{x-2} = 2^{2x} \cdot 2 \cdot 3^x \cdot 3^{-2}$
 $= 2^{2x} \cdot 3^x \cdot 2 \cdot 3^{-2} = 18 \cdot 2 \cdot \frac{1}{9}$
 $\frac{18}{18} = 4$

Cevap: D

3. $(-5)^0 = 1$ 'dir.

Cevap: D

4. A) $2^2 = 4 \rightarrow$ pozitif tamsayı
B) $2^{-2} = \frac{1}{4} \rightarrow$ pozitif sayı
C) $-2^2 = -4 \rightarrow$ negatif tam sayı
B) $(-2)^2 = 4 \rightarrow$ pozitif tam sayı

Cevap: D

5. I. $\rightarrow -2^3 = -8$ Doğru
II. $\rightarrow (-2)^3 = -8$ Doğru
III. $\rightarrow (-7)^0 = 1$ Doğru
Üçü de doğrudur.

Cevap: D

6. A) $(-5)^0 = 1$ Doğru
B) $(-2^2)^3 \neq (-2^3)^2$ 'dir.

Cevap: B

7. $\frac{1}{3} + \frac{1 + \frac{1}{2}}{2 + \frac{1}{4}} = \frac{1}{3} + \frac{\frac{3}{2}}{\frac{9}{4}}$
 $= \frac{1}{3} + \frac{1 \cdot \frac{3}{2}}{2 \cdot \frac{9}{4}} = \frac{1}{3} + \frac{2}{3} = 1$

Cevap: B

8. $\frac{2^{14} (2^2 - 2^{1+1})}{2^{14} (2^1 - 1)} = \frac{3}{1} = 3$

Cevap: C

9. $\frac{4 \cdot 3^{-8}}{4 \cdot 3^{-4}} = \frac{3^{-8}}{3^{-4}} = 3^{-8 - (-4)}$
 $= 3^{-8+4} = 3^{-4} = \frac{1}{81}$

Cevap: D

10. $-9 + 9 - 27 - 1 = -28$

Cevap: A

$$\begin{aligned}
11. & (-3)^4 \cdot (-3)^3 \cdot (-3)^{-3} \cdot (-9)^{-1} \\
& = (-3)^{4+3-3} \cdot (-9)^{-1} \\
& = (-3)^4 \cdot (-9)^{-1} = \frac{81}{9} = 9
\end{aligned}$$

Cevap: C

$$12. (3^2)^{-3} \cdot 3^{(-2) \cdot 3} = 3^{-6} \cdot 3^{-6} = 3^{-12}$$

Cevap: B

$$\begin{aligned}
13. & \frac{\left(\frac{1}{2}\right)^2}{\left(\frac{1}{2}\right)^6} = \left(\frac{1}{2}\right)^{2-6} = \left(\frac{1}{2}\right)^{-4} \\
& = (2^{-1})^{-4} = 2^4
\end{aligned}$$

Cevap: A

$$\begin{aligned}
14. & \frac{(-2^{-1})^3 \cdot (-2)^4}{(-2)^2} = \frac{(-2)^{-3} \cdot (-2)^4}{(-2)^2} \\
& = \frac{(-2)^{-3+4}}{(-2)^2} = \frac{(-2)^1}{(-2)^2} = (-2)^{1-2} = (-2)^{-1} \\
& = -\frac{1}{2}
\end{aligned}$$

Cevap: D

$$\begin{aligned}
15. & \frac{4 \cdot 4^{10}}{4 \cdot 2^{12}} = \frac{4^{10}}{2^{12}} = \frac{(2^2)^{10}}{2^{12}} \\
& = \frac{2^{20}}{2^{12}} = 2^{20-12} = 2^8
\end{aligned}$$

Cevap: B

$$\begin{aligned}
16. & \left(1 + \frac{1}{2}\right) : \frac{1}{9} = \frac{3}{2} : \frac{1}{9} \\
& = \frac{3}{2} \cdot \frac{9}{1} = \frac{27}{2}
\end{aligned}$$

Cevap: C

$$\begin{aligned}
17. & \frac{(3^2)^6 + (3^3)^4 + (3^4)^3}{3^3 \cdot 3^9} = \\
& = \frac{3^{12} + 3^{12} + 3^{12}}{3^{12}} = \frac{3 \cdot 3^{12}}{3^{12}} = 3
\end{aligned}$$

Cevap: C

$$\begin{aligned}
18. & \frac{2^6 \cdot (-2)^{-1} \cdot (3^2)^3}{12^6} = \\
& = \frac{2^6 \cdot (-1) \cdot 2^{-1} \cdot 3^6}{(2^2 \cdot 3)^6} = -\frac{2^5 \cdot 3^6}{(2^2)^6 \cdot 3^6} \\
& = -\frac{2^5 \cdot \cancel{3^6}}{2^{12} \cdot \cancel{3^6}} = -\frac{2^5}{2^{12}} \\
& = -2^{5-12} = -2^{-7}
\end{aligned}$$

Uyarı: $(-12)^6 = 12^6$
 $(-2)^{-1} = (-1) \cdot 2^{-1}$

Cevap: D

$$\begin{aligned}
19. & \frac{(-3^2) \cdot (-3)^{11} \cdot (2^3)^2}{18^6} = \\
& = \frac{(-1) \cdot 3^2 \cdot (-1) \cdot 3^{11} \cdot 2^6}{(3^2 \cdot 2)^6} = \frac{3^{13} \cdot \cancel{2^6}}{3^{12} \cdot \cancel{2^6}} = 3
\end{aligned}$$

Cevap: C

$$20. 3^0 + 1^3 = 1 + 1 = 2$$

Cevap: C