

# TEST 3 Üslü Sayılar

1.  $0^4 = 0$

Cevap: A

2.  $4^{10} \cdot (125)^5 = (2^2)^{10} \cdot (5^3)^5$   
 $= 2^{20} \cdot 5^{15} = 2^5 \cdot \underbrace{2^{15} \cdot 5^{15}}_{15 \text{ tane}}$   
 $= 2^5 \cdot (2 \cdot 5)^{15} = 2^5 \cdot 10^{15}$   
 $= 32 \cdot 10^{15} = 32. \underbrace{000 \dots\dots\dots 00}_{15 \text{ tane}}$   
 $\Rightarrow$  17 basamaklıdır.

Cevap: C

3.  $\left(\frac{1}{2} + 1\right)^{-2} \cdot 9 = \left(\frac{3}{2}\right)^{-2} \cdot 9$   
 $= \left(\frac{2}{3}\right)^2 \cdot 9 = \frac{4}{\cancel{9}} \cdot \frac{1}{\cancel{9}} = 4$

Cevap: C

4.  $\frac{(5^2)^4 \cdot (2 \cdot 3)^8}{(3^2)^4} = \frac{5^8 \cdot 2^8 \cdot \cancel{3^8}}{\cancel{3^8}}$   
 $= 5^8 \cdot 2^8 = (5 \cdot 2)^8 = 10^8 \Rightarrow$  9 basamaklıdır.

Cevap: B

5.  $\left(-\frac{1}{2}\right)^8 : \left(\left(-\frac{1}{2}\right)^3\right)^3$   
 $= \left(-\frac{1}{2}\right)^8 : \left(-\frac{1}{2}\right)^9$   
 $= \frac{\left(-\frac{1}{2}\right)^8}{\left(-\frac{1}{2}\right)^9} = \left(-\frac{1}{2}\right)^{8-9} = \left(-\frac{1}{2}\right)^{-1} = -2$

Cevap: B

6.  $\frac{2^{2001} (2^4 - 2^2 + 1)}{2^{1997} (2^4 - 2^2 + 1)} = \frac{2^{2001}}{2^{1997}} = 2^4 = 16$

Cevap: A

7. A)  $2^a + 2^a + 2^a + 2^a = 4 \cdot 2^a$   
 $= 2^2 \cdot 2^a = 2^{a+2}$  'dir.  
 $\Rightarrow$  A şıkkı yanlıştır!

Cevap: A

8. I.  $-2^5 = -32$  Doğru!  
 II.  $-2^2 \cdot (-2)^2 = -4 \cdot 4 = -16$ 'dir. Yanlıştır!  
 III.  $(-2)^6 = 64$  Doğru!  
 IV.  $-2^2 \cdot (-2)^3 = -4 \cdot -8 = 32$  Doğru!

Cevap: C

9. I.  $-(2^2)^3 = -2^6$  Doğru!  
 II.  $2^a \cdot 2^a \cdot 2^a = 2^{a+a+a} = 2^{3a}$  Yanlıştır!  
 III.  $2^a + 2^a + 2^a = 3 \cdot 2^a$  Yanlıştır!  
 IV.  $2^2 + 2 = 6$  Yanlıştır!

Cevap: A

10.  $\frac{\cancel{3} \cdot 3^{32}}{\cancel{3} \cdot 9^{15}} = \frac{3^{32}}{9^{15}} = \frac{3^{32}}{(3^2)^{15}} = \frac{3^{32}}{3^{30}} = 3^2 = 9$

Cevap: B

$$11. \frac{3^{x+4} - 3^{x+4}}{3^{x+2} - 3^x} = \frac{0}{3^{x+2} - 3^x} = 0$$

Cevap: C

$$12. \frac{4^{40} + 4^{40} + 4^{40} + 4^{40}}{2} = \frac{4 \cdot 4^{40}}{2} = 2 \cdot 4^{40}$$

$$= 2 \cdot (2^2)^{40} = 2 \cdot 2^{80} = 2^{81}$$

Cevap: D

$$13. \frac{(-1) \cdot (+1) + (-1)}{(-1) \cdot (+1)} = \frac{-1 - 1}{-1} = \frac{-2}{-1} = 2$$

Cevap: A

$$14. \frac{(60)^8}{(0,6)^6} = \frac{(6 \cdot 10)^8}{(6 \cdot 10^{-1})^6} = \frac{6^8 \cdot 10^8}{6^6 \cdot 10^{-6}}$$

$$= 6^{8-6} \cdot 10^{8-(-6)} = 6^2 \cdot 10^{14} = 36 \cdot 10^{14}$$

$\Rightarrow$  16 basamaklıdır.

Cevap: C

$$15. 2^{4a-3} = \frac{2^{4a}}{2^3} = \frac{(2^a)^4}{2^3} = \frac{6^4}{2^3}$$

$$= \frac{(2 \cdot 3)^4}{2^3} = \frac{2^4 \cdot 3^4}{2^3} = 2 \cdot 3^4 = 162$$

Cevap: B

$$16. \frac{8^{200}}{2} = \frac{(2^3)^{200}}{2} = \frac{2^{600}}{2} = 2^{599}$$

Cevap: C

$$17. \left(-\frac{1}{2}\right)^3 \cdot (-2)^4 = -\frac{1}{8} \cdot 16 = -2$$

Cevap: D

$$18. 10^{22} (10^3 - 10^2 + 10 - 1) =$$

$$= 10^{22} (1000 - 100 + 9)$$

$$= 10^{22} \cdot 909$$

Cevap: D

$$19. 8^4 \cdot 40^5 \cdot 25^{12} =$$

$$= (2^3)^4 \cdot (2^3 \cdot 5)^5 \cdot (5^2)^{12}$$

$$= 2^{12} \cdot 2^{15} \cdot 5^5 \cdot 5^{24}$$

$$= 2^{27} \cdot 5^{29} = 2^{27} \cdot 5^{27} \cdot 5^2$$

$$= (2 \cdot 5)^{27} \cdot 5^2 = 10^{27} \cdot 25$$

$\Rightarrow$  29 basamaklıdır.

Cevap: A

$$20. \frac{5 \cdot 2^x}{2^x \cdot 2^x} = \frac{5}{2^x} = 40$$

$$\Rightarrow 2^x \cdot 40 = 5 \Rightarrow 2^x = \frac{1}{8} = 2^{-3}$$

$\Rightarrow x = -3$

Cevap: A