

SAYFA-1

ÜSLÜ SAYILAR

1) $a^m \cdot a^n = a^{m+n}$

2) $a^m \cdot b^m = (a \cdot b)^m \quad \left((a^m)^n \right)^k = a^{m \cdot n \cdot k}$

3) $\frac{a^m}{a^n} = a^{m-n}$

4) $a^x = a^y, a \neq 0 \Rightarrow x = y$

5) $a^x = b^x, x \neq 0, a \neq 0, b \neq 0 \Rightarrow a = b$

6) $a \neq 0 \Rightarrow a^0 = 1$

7) $a^{-n} = \frac{1}{a^n}, a^n = \frac{1}{a^{-n}} \Rightarrow a \neq 0$

8) $0^0 = \text{TANIMSIZ}, \frac{1}{0} = \text{TANIMSIZ}, \frac{0}{0} = \text{TANIMSIZ}$

9) $\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n, \left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$

10) $\left((a^n)^m \right)^k = a^{n \cdot m \cdot k}$

11) $a > 0 \Rightarrow a^n = \begin{matrix} n \text{ tek ise} & \text{pozitif} & \Rightarrow & a^n > 0 \\ n \text{ çift ise} & \text{pozitif} & \Rightarrow & a^n > 0 \end{matrix}$

$a < 0 \Rightarrow a^n = \begin{matrix} n \text{ tek ise} & \text{negatif} & \Rightarrow & a^n < 0 \\ n \text{ çift ise} & \text{pozitif} & \Rightarrow & a^n > 0 \end{matrix}$

12) $(a^x \cdot b^y \cdot c^z)^k = a^{xk} \cdot b^{yk} \cdot c^{zk}$

13) $1^n = 1 \quad (-1)^n = \begin{cases} -1 & n \text{ tek ise} \\ +1 & n \text{ çift ise} \end{cases}$

14) $a^x = b^y \Rightarrow \begin{matrix} 1) a = b, x = y \\ 2) a = b = 1, x \neq y \end{matrix}$

15) $0 < a < 1 \Rightarrow \left. \begin{matrix} n > 0 \\ x > 0 \end{matrix} \right\} 0 < a^n < a < 1, \left. \begin{matrix} n > 0 \\ a > 0 \end{matrix} \right\} \Rightarrow a^n > a$

-ÜSLÜ SAYILAR-

$$1) a^m \cdot a^n = a^{m+n}$$

$$2) a^m \cdot b^m = (a \cdot b)^m, \quad (((a)^m)^n)^k = a^{mnk}$$

$$3) \frac{a^m}{a^n} = a^{m-n} = \frac{1}{a^{n-m}}$$

$$4) a^x = a^y, \quad a \neq 0 \text{ ise } x = y$$

$$5) a^x = b^x, \quad x \neq 0, \quad a \neq 0, \quad b \neq 0 \Rightarrow a = b$$

$$6) a \neq 0 \text{ ise } a^0 = 1$$

$$7) a^{-n} = \frac{1}{a^n}, \quad 0^n = \frac{1}{a^{-n}} \Rightarrow a \neq 0$$

$$8) 0^0 = \text{TANIMSIZ}, \quad \frac{1}{0} = \text{TANIMSIZ}, \quad \frac{0}{0} = \text{TANIMSIZ}$$

$$9) \left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n, \quad \left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$$

$$10) a > 0 \text{ ise } a^n = \begin{array}{ll} n \text{ tek ise} & \text{pozitif} \\ n \text{ çift ise} & \text{pozitif} \end{array} \text{ ise } \begin{array}{ll} a^n > 0 \\ a^n > 0 \end{array}$$

$$a < 0 \text{ ise } a^n = \begin{array}{ll} n \text{ tek ise} & \text{negatif} \\ n \text{ çift ise} & \text{pozitif} \end{array} \text{ ise } \begin{array}{ll} a^n < 0 \\ a^n > 0 \end{array}$$

$$11) (a^x \cdot b^y \cdot c^z)^k = a^{xk} \cdot b^{yk} \cdot c^{zk}$$

$$13) 1^n = 1, \quad (-1)^n = \begin{cases} -1 & n \text{ tek ise} \\ +1 & n \text{ çift ise} \end{cases}$$

$$14) a^x = b^y \text{ ise } \begin{array}{l} 1) a=b, x=y \\ 2) a=b=1, x \neq y \end{array}$$

$$15) \left. \begin{array}{l} 0 < a < 1 \\ x > 0 \end{array} \right\} \text{ ise } , \quad 0 < a^n < a < 1, \quad \left. \begin{array}{l} n > 0 \\ a > 0 \end{array} \right\} \Rightarrow a^n > a$$

$$16) \frac{a^m}{b^m} = \left(\frac{a}{b}\right)^m$$

$$17) x^2 < x \Rightarrow 0 < x < 1$$

$$18) x^2 > x \Rightarrow x > 1 \text{ veya } x < -1$$

$$19) 0^1 = 0, \quad 0^{-1} = \frac{1}{0} = \text{TANIMSIZ}, \quad 1^{-1} = 1, \quad 1^1 = 1$$

$$20) a^{\frac{x}{2}} = \sqrt{a^x}$$

$$21) a^{m/n} = \sqrt[n]{a^m}$$

$$22) \frac{a^m}{a^n} \neq a^{m/n}$$