POTENCIJE – formule i primjena formula za potencije u konkretnim zadacima

Izračunaj pomoću formula za potencije

1) $x^2 \cdot x^3 =$

2) $x^8 : x^5 =$

3) $\dfrac{x^6}{x^2} =$

4) $(2x)^3 =$

5) $(3x^2y^3) =$

6) $\left(\left(x^2\right)^3\right)^4 =$

7) $\left(\dfrac{2}{3}\right)^2 =$

8) $\left(\dfrac{2x^2}{y^3}\right)^3 =$

9) $\left(\dfrac{2x^2}{y^4}\right)^{-2} =$

10) $x^0 = ?\ ,\ 3^0 = ?\ ,\ (2x)^0 = ?$

11) $x^0 + (3y)^0 + (-2)^0 =$

12) $x^{-1} =$

13) $x^{-2} =$

14) $2^{-1} + 2^{-2} =$

15) $x^{-1} + x^{-2} =$

rješenja na idućoj stranici
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POTENCIJE

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

$$a^n : a^m = a^{n-m}$$

$$\frac{a^n}{a^m} = a^n : a^m = a^{n-m}$$

$$(abc)^n = a^n b^n c^n$$

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

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

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

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

$$a^0 = 1$$

$$a^1 = a$$

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

$$a^{-n} = \frac{1}{a^n}$$

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1) $x^2 \cdot x^3 = x^{2+3} = x^5$

2) $x^8 : x^5 = x^{8-5} = x^3$

3) $\frac{x^6}{x^2} = x^6 : x^2 = x^{6-2} = x^4$

4) $(2x)^3 = 2^3 x^3 = 8x^3$

5) $(3x^2y^3)^2 = 3^2 (x^2)^2 (y^3)^2 = 9x^{2\cdot 2} y^{3\cdot 2} = 9x^4 y^6$

6) $((x^2)^3)^4 = x^{2\cdot 3\cdot 4} = x^{24}$

7) $\left(\frac{2}{3}\right)^2 = \frac{2^2}{3^2} = \frac{4}{9}$

8) $\left(\frac{2x^2}{y^3}\right)^3 = \frac{2^3 (x^2)^3}{(y^3)^3} = \frac{8 \cdot x^{2\cdot 3}}{y^{3\cdot 3}} = \frac{8x^6}{y^9}$

9) $\left(\frac{2x^2}{y^4}\right)^{-2} = \left(\frac{y^4}{2x^2}\right)^2 = \frac{(y^4)^2}{2^2 (x^2)^2} = \frac{y^{4.2}}{4 \cdot x^{2\cdot 2}} = \frac{y^8}{4x^4}$

10) $x^0 = 1 \quad , \quad 3^0 = 1 \quad , \quad (2x)^0 = 1$

11) $x^0 + (3y)^0 + (-2)^0 = 1 + 1 + 1 = 3$

12) $x^{-1} = \frac{1}{x}$

13) $x^{-2} = \frac{1}{x^2}$

14) $2^{-1} + 2^{-2} = \frac{1}{2} + \frac{1}{2^2} = \frac{1}{2} + \frac{1}{4} = \frac{2+1}{4} = \frac{3}{4}$

15) $x^{-1} + x^{-2} = \frac{1}{x^1} + \frac{1}{x^2} = \frac{1 \cdot x + 1}{x^2} = \frac{x+1}{x^2}$

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$\frac{a^n}{a^m} = a^n : a^m = a^{n-m}$

$(abc)^n = a^n b^n c^n$

$(a^n)^m = a^{n\cdot m}$

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

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

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

$a^0 = 1$

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