

Ridicarea la putere a rapoartelor de numere reale

Reamintim:

$$\boxed{\begin{array}{l} (\sqrt{a})^n = \sqrt{a^n} \\ (a\sqrt{b})^n = a^n\sqrt{b^n} \end{array}} \quad (a, b \in \mathbb{R}^+, b > 0, n \in \mathbb{N}^*)$$

Reguli de calcul cu puteri

$$a^m \cdot a^n = a^{m+n} \quad (a \in \mathbb{R}^+, m, n \in \mathbb{N})$$

$$a^m : a^n = a^{m-n} \quad (a \in \mathbb{R}^+, m, n \in \mathbb{N}, m \geq n)$$

$$(a^m)^n = a^{m \cdot n} \quad (a \in \mathbb{R}^+, m, n \in \mathbb{N})$$

$$a^m \cdot b^m = (a \cdot b)^m \quad (a, b \in \mathbb{R}^+, m \in \mathbb{N})$$

$$a^m : b^m = (a : b)^m \quad (a, b \in \mathbb{R}^+, m \in \mathbb{N})$$

$$(-a)^n = \begin{cases} a^n, & n - \text{par} \\ -a^n, & n - \text{impar} \end{cases} \quad a \in \mathbb{R}^+, n \in \mathbb{N}$$

$$a^0 = 1 \quad (a \in \mathbb{R}^+)$$

$$a^1 = a \quad (a \in \mathbb{R}^+)$$

Dacă exponentul este negativ, atunci vom aplica următoarea formulă:

$$\boxed{a^{-n} = \frac{1}{a^n}} \quad (a \in \mathbb{R}^+, n \in \mathbb{N})$$

În particular, dacă $n = 1$, avem:

$$\boxed{a^{-1} = \frac{1}{a}} \quad (a \in \mathbb{R}^+, n \in \mathbb{N}).$$

Exemple:

$$\left(\frac{\sqrt{3}}{2}\right)^{-4} = \left(\frac{2}{\sqrt{3}}\right)^4 = \frac{16}{9}$$

$$\left(\frac{2\sqrt{5}}{3}\right)^{-1} = \frac{3}{2\sqrt{5}}$$

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