Formulele inmultirii prescurtate. Puteri

1. $(a \pm b)^2 = a^2 \pm 2ab + b^2$.

2. $a^2 - b^2 = (a + b)(a - b)$.

3. $(a \pm b)^3 = a^3 \pm 3a^2b + 3ab^2 \pm b^3 = a^3 \pm b^3 \pm 3ab(a \pm b)$.

4. $a^3 \pm b^3 = (a \pm b)(a^2 \mp ab + b^2)$.

5. $(a_1 a_2 \dots a_m)^n = a_1^n a_2^n \dots a_m^n \qquad m, n \in \mathbf{N},\ a_i \geq 0,\ i = \overline{1, n}$.

6. $a^{n_1} a^{n_2} \dots a^{n_m} = a^{n_1 + n_2 + \dots + n_m} \qquad m, n \in \mathbf{N},\ a \geq 0$.

7. $\dfrac{a^m}{a^n} = a^{m-n} \qquad m, n \in \mathbf{N},\ a > 0$.

8. $(a^m)^n = a^{m \cdot n} \qquad m, n \in \mathbf{N},\ a > 0$.

9. $a^{-n} = \dfrac{1}{a^n} \qquad n \in \mathbf{N},\ a > 0$.

10. $a^{\frac{m}{n}} = \sqrt[n]{a^m} \qquad m, n \in \mathbf{N},\ n \geq 2$.

11. $\sqrt[n]{a^m} = \begin{cases} a^{\frac{m}{n}}, \text{ daca } m = 2k + 1 \\ |a|^{\frac{m}{n}}, \text{ daca } m = 2k \end{cases} \qquad k, m, n \in \mathbf{N},\ n \geq 2$.

12. $(\sqrt[n]{a})^m = \sqrt[n]{a^m} \qquad m, n \in \mathbf{N},\ n \geq 2$.

13. $\sqrt[n]{a_1 a_2 \dots a_m} = \sqrt[n]{|a_1|}\sqrt[n]{|a_2|} \dots \sqrt[n]{|a_m|} \qquad m, n \in \mathbf{N},\ n \geq 2$.

14. $\sqrt[n]{\dfrac{a}{b}} = \dfrac{\sqrt[n]{|a|}}{\sqrt[n]{|b|}} \quad (b \neq 0). \quad (\sqrt[n]{a + b} \neq \sqrt[n]{a} + \sqrt[n]{b},\ a \neq 0,\ b \neq 0). \qquad n \in \mathbf{N},\ n \geq 2$.

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