

Regeln für Potenzen



Nummer	Regel	Beispiel 1	Beispiel 2
I = 1	$a^b \cdot a^c = a^{b+c}$	$2^{\frac{3}{2}} \cdot 2^{\frac{5}{2}} = 2^{\frac{3+5}{2}} = \underline{\underline{2^4}}$	$10^7 \cdot 10^{-3} = \underline{\underline{10^4}}$
II = 2	$a^b : a^c = a^{b-c}$	$7^6 : 7^{-2} = 7^{6+2} = \underline{\underline{7^8}}$	$10^{-3} : 10^{-11} = \underline{\underline{10^8}}$
III = 3	$(a^b)^c = a^{b \cdot c}$	$(5^{-2})^3 = 5^{-2 \cdot 3} = \underline{\underline{5^{-6}}}$	$(10^3)^4 = \underline{\underline{10^{12}}}$
IV = 4	$(a \cdot b)^c = a^c \cdot b^c$	$(5 \cdot 2^{-3})^{\frac{2}{3}} = \underline{\underline{5^{\frac{2}{3}} \cdot 2^{-2}}}$	$(10x)^3 = \underline{\underline{10^3 x^3}}$
V = 5	$\left(\frac{a}{b}\right)^c = \frac{a^c}{b^c}$	$\left(\frac{-2x}{3v}\right)^4 = \frac{2^4 x^4}{3^4 v^4}$	$\left(\frac{x^{-2}}{r}\right)^{-4} = \frac{x^8}{r^{-4}}$
VI = 6	$a^0 = 1 \dots a \neq 0$	$10^0 = \underline{\underline{1}}$	$(-2345)^0 = \underline{\underline{1}}$
VII = 7	$1^r = 1 \dots r \in \mathbb{R}$	$1^{\frac{2}{3}} = \underline{\underline{1}}$	$1^{-3,48} = \underline{\underline{1}}$
VIII = 8	$(-1)^n = 1$ $\dots n \in \mathbb{N}_g$	$(-1)^8 = \underline{\underline{1}}$	$(-1)^{12} = \underline{\underline{1}}$
IX = 9	$(-1)^n = -1$ $\dots n \in \mathbb{N}_u$	$(-1)^7 = \underline{\underline{-1}}$	$(-1)^3 = \underline{\underline{-1}}$
X = 10	$a^{-n} = \frac{1}{a^n}$	$10^{\frac{1}{2}} = \frac{1}{10^{\frac{1}{2}}} = \frac{1}{\sqrt{10}}$	$\frac{10^{-3}}{10^{-9}} = \frac{10^9}{10^3} = \underline{\underline{10^6}}$
XI = 11	$a^n = \frac{1}{a^{-n}}$	$10^4 = \frac{1}{10^{-4}}$	$\frac{10^2 10^{-3}}{10^{-9} 10^5} = \underline{\underline{10^3}}$
XII = 12	$\sqrt[n]{a^b} = a^{\frac{b}{n}}$	$\sqrt[3]{2^5} = \underline{\underline{2^{\frac{5}{3}}}}$	$f^{\frac{3}{4}} = \sqrt[4]{f^3}$