# Potenzen und Wurzeln

## Schreibweise

$$\underbrace{a \cdot a \cdot \cdots \cdot a}_{\text{n-mal}} = a^n$$

$$\sqrt[n]{a} = a^{\frac{1}{n}}$$

## Rechenregeln

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

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

$$(a^m)^n = a^{mn}$$

$$a^n \cdot b^n = (ab)^n$$

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

$$a^{-n} = \left(\frac{1}{a}\right)^n$$

$$\sqrt[m]{a} \cdot \sqrt[n]{a} = \sqrt[mn]{a^{n+m}}$$

$$\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$$

$$\left(\sqrt[n]{a}\right)^m = \sqrt[n]{a^m}$$

$$\sqrt[m]{\sqrt[n]{a}} = \sqrt[mn]{a}$$

$$a^{p/q} = \sqrt[q]{a^p}$$

$$a^{-1/n} = \sqrt[n]{\frac{1}{a}}$$

## Spezielle Exponenten

$$a^0 = 1$$

$$a^1 = a$$