Zusammenfassung: **Logarithmus**

Allgemein:

$$a^x = b \qquad \rightarrow \qquad x = \log_a(b)$$

$$10^x = b \qquad \rightarrow \qquad x = \lg(b)$$

$$\log_a(a) = 1 \qquad\qquad \log_a(1) = 0$$

$$\log_a\left(a^x\right) = x$$

$$a^{\log_a(b)} = b$$

Rechengesetze:

$$\log_a(u \cdot v) = \log_a(u) + \log_a(v)$$

$$\log_a\left(\frac{u}{v}\right) = \log_a(u) - \log_a(v) \qquad \log_a\left(\frac{1}{v}\right) = -\log_a(v)$$

$$\log_a\left(u^v\right) = v \cdot \log_a(u)$$

$$\log_a\left(\sqrt[v]{u}\right) = \frac{1}{v} \cdot \log_a(u)$$

Wechsel der Basis:

$$\log_a(b) = \frac{\log_c(b)}{\log_c(a)} = \frac{\lg(b)}{\lg(a)}$$

c beliebig wählbar