

Der Logarithmus - Umkehrung d. Potenziers

Aufgabe 2 a)

$$\begin{aligned} 3 \cdot 4^x &= 96 && | : 3 \\ 4^x &= 32 && | \log_4 \\ \log_4(4^x) &= \log_4(32) && | T \\ x &= \frac{5}{2} \end{aligned}$$

b)

$$\begin{aligned} 1000 \cdot 5^{x+2} &= 8 && | : 1000 \\ 5^{x+2} &= \frac{1}{125} && | \log_5 \\ \log_5(5^{x+2}) &= \log_5\left(\frac{1}{125}\right) && | T \\ x+2 &= -3 && | - 2 \\ x &= -5 \end{aligned}$$

c)

$$\begin{aligned} 3^{4^x} &= 6561 && | \log_3 \\ \log_3(3^{4^x}) &= \log_3(6561) && | T \\ 4^x &= \log_3(6561) && | \log_4 \\ \log_4(4^x) &= \log_4(\log_3(6561)) && \\ x &= \frac{3}{2} \end{aligned}$$