

3.4

$$\begin{aligned} 1) \log_2(12) &= \log_2(2^2 \cdot 3) \\ &= \log_2(2^2) + \log_2(3) \\ &\approx 2 + 1,58 = 3,58 \end{aligned}$$

$$\begin{aligned} 2) \log_2(\sqrt{5}) &= \log_2(5^{\frac{1}{2}}) \\ &= \frac{1}{2} \log_2(5) \\ &\approx \frac{1}{2} \cdot 2,32 = 1,16 \end{aligned}$$

$$\begin{aligned} 3) \log_2(45) &= \log_2(3^2 \cdot 5) \\ &= \log_2(3^2) + \log_2(5) \\ &= 2 \log_2(3) + \log_2(5) \\ &\approx 2 \cdot 1,58 + 2,32 = 5,48 \end{aligned}$$

$$\begin{aligned} 4) \log_2(60) &= \log_2(2^2 \cdot 3 \cdot 5) \\ &= \log_2(2^2) + \log_2(3) + \log_2(5) \\ &\approx 2 + 1,58 + 2,32 = 5,9 \end{aligned}$$

$$\begin{aligned} 5) \log_2(0,3) &= \log_2\left(\frac{3}{10}\right) \\ &= \log_2\left(\frac{3}{2 \cdot 5}\right) \\ &= \log_2(3) - \log_2(2 \cdot 5) \\ &= \log_2(3) - (\log_2(2) + \log_2(5)) = \log_2(3) - \log_2(2) - \log_2(5) \\ &\approx 1,58 - 1 - 2,32 = -1,74 \end{aligned}$$

$$\begin{aligned} 6) \log_2\left(\frac{3}{5}\right) &= \log_2(3) - \log_2(5) \\ &\approx 1,58 - 2,32 = -0,74 \end{aligned}$$

$$\begin{aligned} 7) \log_2(1000) &= \log_2(2^3 \cdot 5^3) \\ &= \log_2(2^3) + \log_2(5^3) \\ &= 3 \log_2(2) + 3 \log_2(5) \\ &\approx 3 \cdot 1 + 3 \cdot 2,32 = 9,96 \end{aligned}$$

$$\begin{aligned} 8) \log_2\left(\frac{25}{6}\right) &= \log_2\left(\frac{5^2}{2 \cdot 3}\right) \\ &= \log_2(5^2) - \log_2(2 \cdot 3) \\ &= 2 \log_2(5) - (\log_2(2) + \log_2(3)) = 2 \log_2(5) - \log_2(2) - \log_2(3) \\ &\approx 2 \cdot 2,32 - 1 - 1,58 = 2,06 \end{aligned}$$