

Aufgabe 1

- a) $10^3 = 1000$, also $\log_{10}(1000) = 3$
- b) $1,5^2 = 2,25$, also $\log_{1,5}(2,25) = 2$
- c) $2^{-3} = 0,125$, also $\log_2(0,125) = -3$
- d) $0,5^{-3} = 8$, also $\log_{0,5}(8) = -3$
- e) $11^0 = 1$, also $\log_{11}(1) = 0$
- f) $4^{-0,5} = 0,5$, also $\log_4(0,5) = -0,5$
- g) $\left(\frac{27}{8}\right)^{\frac{1}{3}} = 1,5$, also $\log_{\frac{27}{8}}(1,5) = \frac{1}{3}$
- h) $\left(\frac{1024}{100.000}\right)^{-0,2} = 2,5$, also $\log_{\frac{1024}{100.000}}(2,5) = -0,2$

Aufgabe 2

- a) $\log_4(64) = 3$, also $4^3 = 64$
- b) $\log_{10}(0,1) = -1$, also $10^{-1} = 0,1$
- c) $\log_{13}(13) = 1$, also $13^1 = 13$
- d) $\log_{0,3}(1) = 0$, also $0,3^0 = 1$
- e) $\log_{\frac{1}{2}}\left(\frac{1}{4}\right) = 2$, also $\left(\frac{1}{2}\right)^2 = \frac{1}{4}$
- f) $\log_{\frac{1}{4}}\left(\frac{1}{2}\right) = \frac{1}{2}$, also $\left(\frac{1}{4}\right)^{\frac{1}{2}} = \frac{1}{2}$
- g) $\log_{\frac{1}{8}}\left(\frac{1}{2}\right) = \frac{1}{3}$, also $\left(\frac{1}{8}\right)^{\frac{1}{3}} = \frac{1}{2}$
- h) $\log_{10.000}(10) = 0,25$, also $10.000^{0,25} = 10$

Aufgabe 3

a) $x = \log_2(16) = 4$

b) $x = \log_3(27) = 3$

c) $x = \log_{0,5}\left(\frac{1}{32}\right) = 5$

d) $x = \log_{10}(10.000) = 4$

e) $x = \log_{10}(10^{-12}) = -12$

f) $x = \log_{0,2}(0,008) = 3$

g) $x = \log_5(0,2) = -1$

h) $x = \log_3\left(\frac{1}{81}\right) = -4$

i) $x = \log_8(2) = \frac{1}{3}$

j) $x = \log_{1024}(4) = \frac{1}{5}$

k) $x = \log_{81}\left(\frac{1}{3}\right) = -\frac{1}{4}$

l) $x = \log_{125}(0,2) = -\frac{1}{3}$