Lösung A1

a) $log_2(16) = 4$

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

c) $log_{\sqrt{3}}\left(\frac{1}{81}\right) - 8$

d) $log_{0,5}(8) = -3$

e) $log_{\sqrt{5}}(125) = 6$

f) $log_{0,75}\left(\frac{81}{256}\right) = 4$

g) $log_{0,75}\left(\frac{256}{81}\right) = -4$

h) $log_7(7^5) = 5$

i) $log_2(\sqrt[3]{2}) = \frac{1}{3}$

j) $log_6(\sqrt[3]{6^2}) = \frac{2}{3}$

Lösung A2

a) $log_a\left(\frac{1}{a^3}\right) = -3$

b) $log_{\frac{1}{a}}(a^3) = -3$

c) $log_a(\sqrt[n]{a}) = \frac{1}{n}$

d) $log_{\frac{1}{a}}(\sqrt[3]{a^2}) - \frac{2}{3}$

e) $log_a(a^3) = 3$

f) $log_{\frac{1}{a}}(\sqrt[3]{a^4}) = -\frac{4}{3}$

g) $log_{\sqrt{a}}(a^2)=4$

h) $log_{\sqrt{a}}\left(\frac{1}{a}\right) - 2$

i) $log_{\frac{1}{\sqrt{a}}}(a^n) = -2n$

j) $log_a(1) = 0$

Lösung A3

a) $log_x(64) = 3$
$64 = x^3$ ➔ $x = 4$

b) $log_5(x) = 4$
$x = 5^4$ ➔ $x = 625$

c) $log_x(a) = -1$
$a = x^{-1}$ ➔ $x = \frac{1}{a}$

d) $log_{\sqrt{2}}(64) = x$
$64 = \sqrt{2}^x$ ➔ $x = 12$

e) $log_{\sqrt{2}}(x) = 4$
$x = \sqrt{2}^4$ ➔ $x = 4$

f) $log_x(\sqrt{a}) = \frac{1}{4}$
$\sqrt{a} = x^{\frac{1}{4}}$ ➔ $x = a^2$

g) $log_{\sqrt{a}}(x) = -4$
$x = \sqrt{a}^{-4}$ ➔ $x = \frac{1}{a^2}$

h) $5^{log_5(x)} = 625$
$x = 625$

i) $(\sqrt{3})^{\log_3\frac{1}{2}} = x$
$x = 1$

j) $log_x(a^n) = 2n$
$x = a^{\frac{1}{2}} = \sqrt{a}$

Lösung A4

a) $log_2(25) = 4{,}6439$

b) $log_7(28) = 1{,}7124$

c) $log_5(0{,}8) = 0{,}1386$

d) $log_3(128) = 4{,}4165$

e) $log_{0,5}(10) = 0{,}9266$

f) $log_{\sqrt{5}}(0{,}7) = 1{,}0291$

g) $log_{12}(11) = 0{,}9650$

h) $log_{0,9}(0{,}4) = 8{,}6967$

i) $log_{1,1}(18) = 30{,}326$

j) $log_{\frac{3}{4}}\left(\frac{7}{8}\right) = 0{,}4642$