Lösung A1

a)	$\sqrt[3]{3^6} = 3^2 = 9$
b)	$\sqrt[4]{4^8} = 4^2 = 16$
c)	$\sqrt[5]{2^{15}} = 2^3 = 8$
d)	$\sqrt[3]{3^9} = 3^3 = 27$
e)	$\sqrt{4^6} = 4^3 = 64$
f)	$\left(\sqrt[5]{a}\right)^4 = \sqrt[5]{a^4}$
g)	$\left(\sqrt[4]{b}\right)^4 = \sqrt[4]{b^4} = b$
h)	$\left(\sqrt[3]{x}\right)^5 = \sqrt[3]{x^5} = x\sqrt[3]{x^2}$
i)	$\left(\sqrt[3]{y^2}\right)^3 = y^2$
j)	$\left(\sqrt[5]{z^2}\right)^3 = \sqrt[5]{z^6} = z\sqrt[5]{z}$

Lösung A2

a)	$\sqrt[3]{a^6b^9} = a^2b^3$
b)	$\sqrt[4]{x^{12}y^8} = x^3y^2$
c)	$\sqrt[6]{a^3} = \sqrt{a}$
d)	$\sqrt[6]{b^2} = \sqrt[3]{b}$
e)	$\sqrt[8]{x^2y^4} = \sqrt[4]{xy^2}$
f)	$\sqrt{\sqrt{81}} = \sqrt[4]{81} = 3$
g)	$\sqrt{\sqrt[3]{64}} = \sqrt[6]{64} = 2$
h)	$\sqrt[3]{\sqrt{64}} = \sqrt[6]{64} = 2$
i)	$\sqrt[3]{\sqrt[3]{512}} = \sqrt[9]{512} = 2$
j)	$\sqrt{\sqrt{16}} = \sqrt[4]{16} = 2$

Lösung A3

a)	$\sqrt{\sqrt{a^4}} = \sqrt[4]{a^4} = a$
b)	$\sqrt{\sqrt[3]{b^6}} = \sqrt[6]{b^6} = b$
c)	$\sqrt[3]{\sqrt[3]{c^9}} = \sqrt[9]{c^9} = c$
d)	$\sqrt{\sqrt{x^8}} = \sqrt[4]{x^8} = x^2$
e)	$\sqrt[3]{\sqrt{y^{12}}} = \sqrt[6]{y^{12}} = y^2$

f) $\sqrt{\sqrt[3]{a^4}} = \sqrt[6]{a^4} = \sqrt[3]{a^2}$

g) $\sqrt[3]{\sqrt[3]{b^6}} = \sqrt[9]{b^6} = \sqrt[3]{b^2}$

h) $\sqrt[3]{\sqrt[4]{c^{10}}} = \sqrt[12]{c^{10}} = \sqrt[6]{c^5}$

i) $\sqrt{\sqrt[3]{x^{12}}} = \sqrt[6]{x^{12}} = x^2$

j) $\sqrt{\sqrt{y^6}} = \sqrt[4]{y^6} = y \cdot \sqrt[4]{y^2} = y \cdot \sqrt{y}$

Lösung A4

a) $\frac{\sqrt{a}}{a^{\frac{1}{4}}} = a^{\frac{1}{4}} = \sqrt[4]{a}$

b) $\frac{\sqrt[3]{x^2}}{x^{\frac{1}{6}}} = x^{\frac{3}{6}} = x^{\frac{1}{2}} = \sqrt{x}$

c) $\frac{5^{\frac{1}{n-1}}}{5^{\frac{1}{n-1}}} = 1$

d) $\left(\left(\frac{1}{4}\right)^{-a}\right)^{\frac{1}{a}} = \left(\frac{1}{4}\right)^{-1} = 4$

e) $\sqrt{\frac{4x^2}{5y^2}} = \frac{2x}{y \cdot \sqrt{5}} = \frac{2x \cdot \sqrt{5}}{y \cdot \sqrt{5} \cdot \sqrt{5}} = \frac{2x\sqrt{5}}{5y}$

f) $\sqrt[3]{\frac{x}{b^2}} \cdot \sqrt[3]{\frac{x^2}{b}} = \frac{x}{b}$

g) $\sqrt{x^3y^2} \cdot \frac{1}{\sqrt{xy}} = x \cdot \sqrt{y}$

h) $\frac{\sqrt[3]{\frac{x}{y}}}{\sqrt[3]{xy^2}} = \frac{1}{\sqrt[3]{y^3}} = \frac{1}{y}$