Aufgabenblatt
zu Potenzen mit rationalem Exponenten

Level 3 – Expert – Blatt 1

Dokument mit 128 Aufgaben

Aufgabe A1

Vereinfache und bringe den Term in die Wurzeldarstellung.

a) $2^{\frac{1}{2}} \cdot 2^{\frac{1}{4}}$ b) $6^{\frac{1}{4}} \cdot 6^{\frac{1}{3}}$ c) $3^{\frac{1}{3}} \cdot 3^{\frac{1}{2}}$ d) $4^{\frac{1}{7}} \cdot 4^{\frac{1}{8}}$

e) $2^{\frac{1}{2}} \cdot 2^{\frac{1}{2}} \cdot 2^{\frac{1}{2}}$ f) $3 \cdot 3^{\frac{1}{3}} \cdot 3^{\frac{1}{5}}$ g) $5^{\frac{1}{4}} \cdot 5^{\frac{1}{2}} \cdot 5$ h) $7^{\frac{1}{7}} \cdot 7^{\frac{1}{6}} \cdot 7^{\frac{1}{5}} \cdot 7^{\frac{1}{4}}$

i) $2^{\frac{1}{3}} \cdot 2^{-\frac{1}{2}}$ j) $6^{\frac{1}{5}} \cdot 6^{-\frac{1}{3}}$ k) $3^{-\frac{1}{3}} \cdot 3^{\frac{1}{2}}$ l) $4^{\frac{1}{7}} \cdot 4^{-\frac{1}{8}}$

m) $2^{\frac{1}{2}} \cdot 2^{-\frac{1}{2}} \cdot 2^{-\frac{1}{2}}$ n) $3^{-1} \cdot 3^{\frac{1}{3}} \cdot 3^{-\frac{1}{5}}$ o) $5^{\frac{1}{4}} \cdot 5^{-\frac{1}{2}} \cdot 5$ p) $7^{-\frac{1}{7}} \cdot 7^{-\frac{1}{6}} \cdot 7^{-\frac{1}{5}}$

Aufgabe A2

Vereinfache und bringe den Term in die Wurzeldarstellung.

a) $x^{\frac{1}{2}} \cdot x^{\frac{1}{4}}$ b) $y^{\frac{1}{4}} \cdot y^{\frac{1}{3}}$ c) $z^{\frac{1}{3}} \cdot z^{\frac{1}{2}}$ d) $a^{\frac{1}{7}} \cdot a^{\frac{1}{8}}$

e) $c^{\frac{1}{2}} \cdot c^{\frac{1}{2}} \cdot c^{\frac{1}{2}}$ f) $x \cdot x^{\frac{1}{3}} \cdot x^{\frac{1}{5}}$ g) $z^{\frac{1}{4}} \cdot z^{\frac{1}{2}} \cdot z$ h) $a^{\frac{1}{7}} \cdot a^{\frac{1}{6}} \cdot a^{\frac{1}{5}} \cdot a^{\frac{1}{4}}$

i) $x^{\frac{1}{3}} \cdot x^{-\frac{1}{2}}$ j) $y^{\frac{1}{5}} \cdot y^{-\frac{1}{3}}$ k) $z^{-\frac{1}{3}} \cdot z^{\frac{1}{2}}$ l) $a^{\frac{1}{7}} \cdot a^{-\frac{1}{8}}$

m) $c^{\frac{1}{2}} \cdot c^{-\frac{1}{2}} \cdot c^{-\frac{1}{2}}$ n) $y^{-1} \cdot y^{\frac{1}{3}} \cdot y^{-\frac{1}{5}}$ o) $z^{\frac{1}{4}} \cdot z^{-\frac{1}{2}} \cdot z$ p) $a^{-\frac{1}{7}} \cdot a^{-\frac{1}{6}} \cdot a^{-\frac{1}{5}}$

Aufgabe A3

Vereinfache und bringe den Term in die Wurzeldarstellung.

a) $2^{\frac{1}{a}} \cdot 2^{\frac{1}{b}}$ b) $6^{\frac{1}{c}} \cdot 6^{\frac{1}{d}}$ c) $3^{\frac{1}{x}} \cdot 3^{\frac{1}{y}}$ d) $4^{\frac{1}{k}} \cdot 4^{\frac{1}{l}}$

e) $2^{\frac{1}{l}} \cdot 2^{\frac{1}{m}} \cdot 2^{\frac{1}{n}}$ f) $3 \cdot 3^{\frac{1}{a}} \cdot 3^{\frac{1}{b}}$ g) $5^{\frac{1}{2}} \cdot 5^{\frac{1}{b}} \cdot 5$ h) $7^{\frac{1}{a}} \cdot 7^{\frac{1}{b}} \cdot 7^{\frac{1}{a}} \cdot 7^{\frac{1}{b}}$

i) $2^{\frac{1}{a}} \cdot 2^{-\frac{1}{b}}$ j) $6^{\frac{1}{c}} \cdot 6^{-\frac{1}{d}}$ k) $3^{-\frac{1}{x}} \cdot 3^{\frac{1}{y}}$ l) $4^{\frac{1}{k}} \cdot 4^{-\frac{1}{l}}$

m) $2^{\frac{1}{l}} \cdot 2^{-\frac{1}{m}} \cdot 2^{-\frac{1}{l}}$ n) $3^{-1} \cdot 3^{\frac{1}{a}} \cdot 3^{-\frac{1}{b}}$ o) $5^{\frac{1}{2}} \cdot 5^{-\frac{1}{a}} \cdot 5$ p) $7^{-\frac{1}{a}} \cdot 7^{-\frac{1}{b}} \cdot 7^{-\frac{1}{c}}$

Aufgabe A4

Vereinfache und bringe den Term in die Wurzeldarstellung.

a) $x^{\frac{1}{a}} \cdot x^{\frac{1}{b}}$ b) $y^{\frac{1}{c}} \cdot y^{\frac{1}{d}}$ c) $z^{\frac{1}{x}} \cdot z^{\frac{1}{y}}$ d) $a^{\frac{1}{k}} \cdot a^{\frac{1}{l}}$

e) $c^{\frac{1}{l}} \cdot c^{\frac{1}{m}} \cdot c^{\frac{1}{n}}$ f) $x \cdot x^{\frac{1}{a}} \cdot x^{\frac{1}{b}}$ g) $z^{\frac{1}{2}} \cdot z^{\frac{1}{a}} \cdot z$ h) $a^{\frac{1}{a}} \cdot a^{\frac{1}{b}} \cdot a^{\frac{1}{a}} \cdot a^{\frac{1}{b}}$

i) $x^{\frac{1}{a}} \cdot x^{-\frac{1}{b}}$ j) $y^{\frac{1}{c}} \cdot y^{-\frac{1}{d}}$ k) $z^{-\frac{1}{x}} \cdot z^{\frac{1}{y}}$ l) $a^{\frac{1}{k}} \cdot a^{-\frac{1}{l}}$

m) $c^{\frac{1}{l}} \cdot c^{-\frac{1}{m}} \cdot c^{-\frac{1}{n}}$ n) $y^{-1} \cdot y^{\frac{1}{a}} \cdot y^{-\frac{1}{b}}$ o) $z^{\frac{1}{2}} \cdot z^{-\frac{1}{a}} \cdot z$ p) $a^{-\frac{1}{a}} \cdot a^{-\frac{1}{b}} \cdot a^{-\frac{1}{c}}$

Aufgabe A5

Vereinfache und bringe den Term in die Wurzeldarstellung.

a) $2^{\frac{1}{2}} : 2^{\frac{1}{2}}$ b) $6^{\frac{1}{4}} : 6^{\frac{1}{3}}$ c) $3^{\frac{1}{3}} : 3^{\frac{1}{2}}$ d) $4^{\frac{1}{7}} : 4^{\frac{1}{8}}$

e) $2^{\frac{1}{2}} : 2^{\frac{1}{2}} : 2^{\frac{1}{2}}$ f) $3 : 3^{\frac{1}{3}} : 3^{\frac{1}{5}}$ g) $5^{\frac{1}{4}} : 5^{\frac{1}{2}} : 5$ h) $7^{\frac{1}{7}} : 7^{\frac{1}{6}} : 7^{\frac{1}{5}} : 7^{\frac{1}{4}}$

i) $2^{\frac{1}{3}} : 2^{-\frac{1}{2}}$ j) $6^{\frac{1}{5}} : 6^{-\frac{1}{3}}$ k) $3^{-\frac{1}{3}} : 3^{\frac{1}{2}}$ l) $4^{\frac{1}{7}} : 4^{-\frac{1}{8}}$

m) $2^{\frac{1}{2}} : 2^{-\frac{1}{2}} : 2^{-\frac{1}{2}}$ n) $3^{-1} : 3^{\frac{1}{3}} : 3^{-\frac{1}{5}}$ o) $5^{\frac{1}{4}} : 5^{-\frac{1}{2}} : 5$ p) $7^{-\frac{1}{7}} : 7^{-\frac{1}{6}} : 7^{-\frac{1}{5}}$

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Aufgabe A6

Vereinfache und bringe den Term in die Wurzeldarstellung.

a)	$x^{\frac{1}{2}}:x^{\frac{1}{2}}$	b)	$y^{\frac{1}{4}}:y^{\frac{1}{3}}$	c)	$z^{\frac{1}{3}}:z^{\frac{1}{2}}$	d)	$a^{\frac{1}{7}}:a^{\frac{1}{8}}$
e)	$c^{\frac{1}{2}}:c^{\frac{1}{2}}:c^{\frac{1}{2}}$	f)	$x:x^{\frac{1}{3}}:x^{\frac{1}{5}}$	g)	$z^{\frac{1}{4}}:z^{\frac{1}{2}}:z$	h)	$a^{\frac{1}{7}}:a^{\frac{1}{6}}:a^{\frac{1}{5}}:a^{\frac{1}{4}}$
i)	$x^{\frac{1}{3}}:x^{-\frac{1}{2}}$	j)	$y^{\frac{1}{5}}:y^{-\frac{1}{3}}$	k)	$z^{-\frac{1}{3}}:z^{\frac{1}{2}}$	l)	$a^{\frac{1}{7}}:a^{-\frac{1}{8}}$
m)	$c^{\frac{1}{2}}:c^{-\frac{1}{2}}:c^{-\frac{1}{2}}$	n)	$y^{-1}:y^{\frac{1}{3}}:y^{-\frac{1}{5}}$	o)	$z^{\frac{1}{4}}:z^{-\frac{1}{2}}:z$	p)	$a^{-\frac{1}{7}}:a^{-\frac{1}{6}}:a^{-\frac{1}{5}}$

Aufgabe A7

Vereinfache und bringe den Term in die Wurzeldarstellung.

a)	$2^{\frac{1}{a}}:2^{\frac{1}{b}}$	b)	$6^{\frac{1}{c}}:6^{\frac{1}{d}}$	c)	$3^{\frac{1}{x}}:3^{\frac{1}{y}}$	d)	$4^{\frac{1}{k}}:4^{\frac{1}{l}}$
e)	$2^{\frac{1}{l}}:2^{\frac{1}{m}}:2^{\frac{1}{n}}$	f)	$3:3^{\frac{1}{a}}:3^{\frac{1}{b}}$	g)	$5^{\frac{1}{2}}:5^{\frac{1}{a}}:5$	h)	$7^{\frac{1}{a}}:7^{\frac{1}{b}}:7^{\frac{1}{a}}:7^{\frac{1}{b}}$
i)	$2^{\frac{1}{a}}:2^{-\frac{1}{b}}$	j)	$6^{\frac{1}{c}}:6^{-\frac{1}{d}}$	k)	$3^{-\frac{1}{x}}:3^{\frac{1}{y}}$	l)	$4^{\frac{1}{k}}:4^{-\frac{1}{l}}$
m)	$2^{\frac{1}{l}}:2^{-\frac{1}{m}}:2^{-\frac{1}{n}}$	n)	$3^{-1}:3^{\frac{1}{a}}:3^{-\frac{1}{b}}$	o)	$5^{\frac{1}{2}}:5^{-\frac{1}{a}}:5$	p)	$7^{-\frac{1}{a}}:7^{-\frac{1}{b}}:7^{-\frac{1}{c}}$

Aufgabe A8

Vereinfache und bringe den Term in die Wurzeldarstellung.

a)	$x^{\frac{1}{a}}:x^{\frac{1}{b}}$	b)	$y^{\frac{1}{c}}:y^{\frac{1}{d}}$	c)	$z^{\frac{1}{x}}:z^{\frac{1}{y}}$	d)	$a^{\frac{1}{k}}:a^{\frac{1}{l}}$
e)	$c^{\frac{1}{l}}:c^{\frac{1}{m}}:c^{\frac{1}{n}}$	f)	$x:x^{\frac{1}{a}}:x^{\frac{1}{b}}$	g)	$z^{\frac{1}{2}}:z^{\frac{1}{a}}:z$	h)	$a^{\frac{1}{a}}:a^{\frac{1}{b}}:a^{\frac{1}{a}}:a^{\frac{1}{b}}$
i)	$x^{\frac{1}{a}}:x^{-\frac{1}{b}}$	j)	$y^{\frac{1}{c}}:y^{-\frac{1}{d}}$	k)	$z^{-\frac{1}{x}}:z^{\frac{1}{y}}$	l)	$a^{\frac{1}{k}}:a^{-\frac{1}{l}}$
m)	$c^{\frac{1}{l}}:c^{-\frac{1}{m}}:c^{-\frac{1}{n}}$	n)	$y^{-1}:y^{\frac{1}{a}}:y^{-\frac{1}{b}}$	o)	$z^{\frac{1}{2}}:z^{-\frac{1}{a}}:z$	p)	$a^{-\frac{1}{a}}:a^{-\frac{1}{b}}:a^{-\frac{1}{c}}$

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Lösungen

Level 3 – Expert – Blatt 1

Lösung A1

a) $2^{\frac{1}{2}+\frac{1}{4}} = 2^{\frac{3}{4}} = \sqrt[4]{8}$

b) $6^{\frac{1}{4}+\frac{1}{3}} = 6^{\frac{7}{12}} = \sqrt[12]{6^7}$

c) $3^{\frac{5}{6}} = \sqrt[6]{3^5}$

d) $4^{\frac{15}{56}} = \sqrt[56]{4^{15}}$

e) $2^{\frac{3}{2}} = \sqrt{8}$

f) $3 \cdot 3^{\frac{8}{15}} = 3 \cdot \sqrt[15]{3^8}$

g) $5 \cdot 5^{\frac{3}{4}} = 5 \cdot \sqrt[4]{125}$

h) $7^{\frac{319}{420}} = \sqrt[420]{7^{319}}$

i) $2^{-\frac{1}{6}} = \frac{1}{\sqrt[6]{2}}$

j) $6^{-\frac{2}{15}} = \frac{1}{\sqrt[15]{36}}$

k) $3^{\frac{1}{6}} = \sqrt[6]{3}$

l) $4^{\frac{1}{56}} = \sqrt[56]{4}$

m) $2^{-\frac{1}{2}} = \frac{1}{\sqrt{2}} = \frac{1}{2} \cdot \sqrt{2}$

n) $3^{-\frac{13}{15}} = \frac{1}{3 \cdot \sqrt[15]{27}}$

o) $5^{\frac{3}{4}} = \sqrt[4]{125}$

p) $7^{-\frac{107}{210}} = \frac{1}{\sqrt[210]{7^{107}}}$

Lösung A2

a) $x^{\frac{3}{4}} = \sqrt[4]{x^3}$

b) $y^{\frac{7}{12}} = \sqrt[12]{y^7}$

c) $z^{\frac{5}{6}} = \sqrt[6]{z^5}$

d) $a^{\frac{15}{56}} = \sqrt[56]{a^{15}}$

e) $c^{\frac{3}{2}} = \sqrt{c^3}$

f) $x^{\frac{58}{15}} = x^3 \cdot \sqrt[15]{x^8}$

g) $z^{\frac{7}{4}} = z \cdot \sqrt[4]{z^3}$

h) $a^{\frac{319}{420}} = \sqrt[420]{a^{319}}$

i) $x^{-\frac{1}{6}} = \frac{1}{\sqrt[6]{x}}$

j) $y^{-\frac{2}{15}} = \frac{1}{\sqrt[15]{y^2}}$

k) $z^{\frac{1}{6}} = \sqrt[6]{z}$

l) $a^{\frac{1}{56}} = \sqrt[56]{a}$

m) $c^{-\frac{1}{2}} = \frac{1}{\sqrt{c}}$

n) $y^{-\frac{13}{15}} = \frac{1}{y \cdot \sqrt[15]{y^3}}$

o) $z^{\frac{3}{4}} = \sqrt[4]{z^3}$

p) $a^{-\frac{107}{210}} = \frac{1}{\sqrt[210]{a^{107}}}$

Lösung A3

a) $2^{\frac{a+b}{a \cdot b}} = \sqrt[ab]{2^{a+b}}$

b) $6^{\frac{c+d}{c \cdot d}} = \sqrt[cd]{6^{c+d}}$

c) $3^{\frac{x+y}{x \cdot y}} = \sqrt[xy]{3^{x+y}}$

d) $4^{\frac{k+l}{k \cdot l}} = \sqrt[kl]{4^{k+l}}$

e) $2^{\frac{mn+ln+lm}{l \cdot m \cdot n}} = \sqrt[lmn]{2^{mn+ln+lm}}$

f) $3^{\frac{a+b+ab}{a \cdot b}} = \sqrt[ab]{3^{a+b+ab}}$

g) $5^{\frac{2+b+2b}{2b}} = \sqrt[2b]{5^{2+3b}}$

h) $7^{\frac{2a+2b}{a \cdot b}} = \sqrt[ab]{7^{2a+2b}}$

i) $2^{\frac{b-a}{a \cdot b}} = \sqrt[ab]{2^{b-a}}$

j) $6^{\frac{d-c}{c \cdot d}} = \sqrt[cd]{6^{d-c}}$

k) $3^{\frac{x-y}{x \cdot y}} = \sqrt[xy]{3^{x-y}}$

l) $4^{\frac{l-k}{k \cdot l}} = \sqrt[kl]{4^{l-k}}$

m) $2^{-\frac{1}{m}} = \frac{1}{\sqrt[m]{2}}$

n) $3^{\frac{b-a-ab}{a \cdot b}} = \sqrt[ab]{3^{b-a-ab}}$

o) $5^{\frac{3a-2}{2a}} = \sqrt[2a]{5^{3a-2}}$

p) $7^{\frac{-ac-ab-bc}{a \cdot b \cdot c}} = \frac{1}{\sqrt[abc]{7^{ac+ab+bc}}}$

Lösung A4

a) $x^{\frac{a+b}{a \cdot b}} = \sqrt[ab]{x^{a+b}}$

b) $y^{\frac{c+d}{c \cdot d}} = \sqrt[cd]{y^{c+d}}$

c) $z^{\frac{x+y}{x \cdot y}} = \sqrt[xy]{z^{x+y}}$

d) $a^{\frac{k+l}{k \cdot l}} = \sqrt[kl]{a^{k+l}}$

e) $c^{\frac{mn+ln+lm}{l \cdot m \cdot n}} = \sqrt[lmn]{c^{mn+ln+lm}}$

f) $x^{\frac{a+b+ab}{a \cdot b}} = \sqrt[ab]{x^{a+b+ab}}$

g) $z^{\frac{2+a+2a}{2a}} = \sqrt[2b]{z^{2+3b}}$

h) $a^{\frac{2a+2b}{a \cdot b}} = \sqrt[ab]{a^{2a+2b}}$

i) $x^{\frac{b-a}{a \cdot b}} = \sqrt[ab]{x^{b-a}}$

j) $y^{\frac{d-c}{c \cdot d}} = \sqrt[cd]{y^{d-c}}$

k) $z^{\frac{x-y}{x \cdot y}} = \sqrt[xy]{z^{x-y}}$

l) $a^{\frac{l-k}{k \cdot l}} = \sqrt[kl]{a^{l-k}}$

m) $c^{\frac{mn-ln-lm}{l \cdot m \cdot n}} = \sqrt[lmn]{c^{mn-ln-lm}}$

n) $y^{\frac{b-a-ab}{a \cdot b}} = \sqrt[ab]{y^{b-a-ab}}$

o) $z^{\frac{3a-2}{2a}} = \sqrt[2a]{z^{3a-2}}$

p) $a^{\frac{-ac-ab-bc}{a \cdot b \cdot c}} = \frac{1}{\sqrt[abc]{a^{ac+ab+bc}}}$

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Lösungen

Level 3 – Expert – Blatt 1

Lösung A5

a) $2^{\frac{1}{2}-\frac{1}{2}} = 2^0 = 1$

b) $6^{\frac{1}{4}-\frac{1}{3}} = \frac{1}{\sqrt[12]{6}}$

c) $3^{\frac{1}{3}-\frac{1}{2}} = \frac{1}{\sqrt[6]{3}}$

d) $4^{\frac{1}{7}-\frac{1}{8}} = \sqrt[56]{4}$

e) $2^{\frac{1}{2}-\frac{1}{2}-\frac{1}{2}} = \frac{1}{\sqrt{2}} = \frac{1}{2}\cdot\sqrt{2}$

f) $3^{1-\frac{1}{3}-\frac{1}{5}} = \sqrt[15]{3^7}$

g) $5^{\frac{1}{4}-\frac{1}{2}-1} = \frac{1}{5\cdot\sqrt[4]{5}}$

h) $7^{\frac{1}{7}-\frac{1}{6}-\frac{1}{5}-\frac{1}{4}} = \frac{1}{\sqrt[420]{7^{199}}}$

i) $2^{\frac{1}{3}-\left(-\frac{1}{2}\right)} = \sqrt[6]{32}$

j) $6^{\frac{1}{5}+\frac{1}{3}} = \sqrt[15]{6^8}$

k) $3^{-\frac{1}{3}-\frac{1}{2}} = \frac{1}{\sqrt[6]{3^5}}$

l) $4^{\frac{1}{7}+\frac{1}{8}} = \sqrt[56]{4^{15}}$

m) $2^{\frac{1}{2}+\frac{1}{2}+\frac{1}{2}} = 2\cdot\sqrt{2}$

n) $3^{-1-\frac{1}{3}+\frac{1}{5}} = \frac{1}{3\cdot\sqrt[15]{9}}$

o) $5^{\frac{1}{4}+\frac{1}{2}-1} = \frac{1}{\sqrt[4]{5}}$

p) $7^{\frac{1}{7}+\frac{1}{6}+\frac{1}{5}} = \sqrt[210]{7^{47}}$

Lösung A6

a) $x^{\frac{1}{2}-\frac{1}{2}} = x^0 = 1$

b) $y^{\frac{1}{4}-\frac{1}{3}} = \frac{1}{\sqrt[12]{y}}$

c) $z^{\frac{1}{3}-\frac{1}{2}} = \frac{1}{\sqrt[6]{z}}$

d) $a^{\frac{1}{7}-\frac{1}{8}} = \sqrt[56]{a}$

e) $c^{\frac{1}{2}-\frac{1}{2}-\frac{1}{2}} = \frac{1}{\sqrt{c}}$

f) $x^{1-\frac{1}{3}-\frac{1}{5}} = \sqrt[15]{x^7}$

g) $z^{\frac{1}{4}-\frac{1}{2}-1} = \frac{1}{z\cdot\sqrt[4]{z}}$

h) $a^{\frac{1}{7}-\frac{1}{6}-\frac{1}{5}-\frac{1}{4}} = \frac{1}{\sqrt[420]{a^{199}}}$

i) $x^{\frac{1}{3}-\left(-\frac{1}{2}\right)} = \sqrt[6]{x^5}$

j) $y^{\frac{1}{5}+\frac{1}{3}} = \sqrt[15]{y^8}$

k) $z^{-\frac{1}{3}-\frac{1}{2}} = \frac{1}{\sqrt[6]{z^5}}$

l) $a^{\frac{1}{7}+\frac{1}{8}} = \sqrt[56]{a^{15}}$

m) $c^{\frac{1}{2}+\frac{1}{2}+\frac{1}{2}} = c\cdot\sqrt{c}$

n) $\frac{1}{y\cdot\sqrt[15]{y^2}}$

o) $\frac{1}{\sqrt[4]{z}}$

p) $\sqrt[210]{a^{47}}$

Lösung A7

a) $2^{\frac{b-a}{a\cdot b}} = \sqrt[ab]{2^{b-a}}$

b) $6^{\frac{d-c}{c\cdot d}} = \sqrt[cd]{6^{d-c}}$

c) $3^{\frac{y-x}{x\cdot y}} = \sqrt[xy]{3^{y-x}}$

d) $4^{\frac{l-k}{k\cdot l}} = \sqrt[kl]{4^{l-k}}$

e) $2^{\frac{mn-ln-lm}{l\cdot m\cdot n}} = \sqrt[lmn]{2^{mn-ln-lm}}$

f) $3^{\frac{ab-a-b}{a\cdot b}} = \sqrt[ab]{3^{ab-a-b}}$

g) $5^{\frac{-a-2}{2a}} = \frac{1}{\sqrt[2a]{5^{a+2}}}$

h) $7^{-\frac{2}{b}} = \frac{1}{\sqrt[b]{49}}$

i) $2^{\frac{a+b}{a\cdot b}} = \sqrt[ab]{2^{a+b}}$

j) $6^{\frac{c+d}{c\cdot d}} = \sqrt[cd]{6^{c+d}}$

k) $3^{\frac{-x-y}{x\cdot y}} = \frac{1}{\sqrt[xy]{3^{x+y}}}$

l) $4^{\frac{k+l}{k\cdot l}} = \sqrt[kl]{4^{k+l}}$

m) $2^{\frac{mn+ln+lm}{l\cdot m\cdot n}} = \sqrt[lmn]{2^{mn+ln+lm}}$

n) $3^{\frac{a-b-ab}{a\cdot b}} = \sqrt[ab]{3^{a-b-ab}}$

o) $5^{\frac{2-a}{2a}} = \sqrt[2a]{5^{2-a}}$

p) $7^{\frac{-bc+ac+ab}{a\cdot b\cdot c}} = \sqrt[abc]{7^{-bc+ac+ab}}$

Lösung A8

a) $x^{\frac{b-a}{a\cdot b}} = \sqrt[ab]{x^{b-a}}$

b) $y^{\frac{1}{c}-\frac{1}{d}} = \sqrt[cd]{y^{d-c}}$

c) $z^{\frac{y-x}{x\cdot y}} = \sqrt[xy]{z^{y-x}}$

d) $a^{\frac{l-k}{k\cdot l}} = \sqrt[kl]{a^{l-k}}$

e) $c^{\frac{mn-ln-lm}{l\cdot m\cdot n}} = \sqrt[lmn]{c^{mn-ln-lm}}$

f) $x^{\frac{ab-b-a}{a\cdot b}} = \sqrt[ab]{x^{ab-a-b}}$

g) $z^{\frac{-a-2}{2a}} = \frac{1}{\sqrt[2a]{z^{a+2}}}$

h) $a^{-\frac{2}{b}} = \frac{1}{\sqrt[b]{a^2}}$

i) $x^{\frac{a+b}{a\cdot b}} = \sqrt[kl]{x^{k+l}}$

j) $y^{\frac{c+d}{c\cdot d}} = \sqrt[cd]{y^{c+d}}$

k) $z^{\frac{-x-y}{x\cdot y}} = \frac{1}{\sqrt[xy]{z^{x+y}}}$

l) $a^{\frac{k+l}{k\cdot l}} = \sqrt[kl]{a^{k+l}}$

m) $c^{\frac{mn+ln+lm}{l\cdot m\cdot n}} = \sqrt[lmn]{c^{mn+ln+lm}}$

n) $y^{\frac{a-b-ab}{a\cdot b}} = \sqrt[ab]{y^{a-b-ab}}$

o) $z^{\frac{2-a}{2a}} = \sqrt[2a]{z^{2-a}}$

p) $a^{\frac{-bc+ac+ab}{a\cdot b\cdot c}} = \sqrt[abc]{a^{-bc+ac+ab}}$