

S 74 Nr. 23

$$a) \frac{5}{\sqrt{7}} = \frac{5 \cdot \sqrt{7}}{\sqrt{7} \cdot \sqrt{7}} = \frac{5 \cdot \sqrt{7}}{7} \quad \text{Der Nenner ist nun rational}$$

erweitert

$$b) \frac{3}{\sqrt[3]{5}} = \frac{3 \cdot 5^{\frac{2}{3}}}{5^{\frac{1}{3}} \cdot 5^{\frac{2}{3}}} = \frac{3 \cdot 5^{\frac{2}{3}}}{5^{\frac{1}{3} + \frac{2}{3}}} = \frac{3 \cdot \sqrt[3]{5^2}}{5} = \frac{3 \cdot \sqrt[3]{5^2}}{5}$$

erweitert
1. PS

$$c) \frac{2}{\sqrt[4]{x^3}} = \frac{2 \cdot x^{\frac{1}{4}}}{x^{\frac{3}{4}} \cdot x^{\frac{1}{4}}} = \frac{2 \cdot \sqrt[4]{x}}{x^{\frac{3}{4} + \frac{1}{4}}} = \frac{2 \cdot \sqrt[4]{x}}{x} = \frac{2 \sqrt[4]{x}}{x}$$

erweitert

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

erweitert
gekürzt

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

3 PS erweitert
gekürzt

S 74 Nr. 24

$$a) (u^{-3} + v^{-3}) \cdot (u^{-3} - v^{-3}) = (u^{-3})^2 - (v^{-3})^2 = \underline{\underline{u^{-6} - v^{-6}}}$$

3 Binomische Formel

$$b) (25^{\frac{1}{3}} - 4^{\frac{1}{3}}) \cdot (5^{\frac{1}{3}} + 2^{\frac{1}{3}}) = (25 \cdot 5)^{\frac{1}{3}} + (25 \cdot 2)^{\frac{1}{3}} - (4 \cdot 5)^{\frac{1}{3}} - (4 \cdot 2)^{\frac{1}{3}}$$

$$= (5^3)^{\frac{1}{3}} + 50^{\frac{1}{3}} - 20^{\frac{1}{3}} - (2^3)^{\frac{1}{3}}$$

$$= 5 + 50^{\frac{1}{3}} - 20^{\frac{1}{3}} - 2 = \underline{\underline{3 + 50^{\frac{1}{3}} - 20^{\frac{1}{3}}}}$$

$$c) (a \sqrt[3]{b} + b \sqrt[3]{a}) : \sqrt[3]{ab} = \frac{a \sqrt[3]{b}}{\sqrt[3]{ab}} + \frac{b \sqrt[3]{a}}{\sqrt[3]{ab}}$$

$$= \left(\frac{a^{\cancel{3}^2} \cdot b}{a \cdot b} \right)^{\frac{1}{3}} + \left(\frac{b^{\cancel{3}^2} \cdot a}{a \cdot b} \right)^{\frac{1}{3}}$$

$$= \underline{\underline{a^{\frac{2}{3}} + b^{\frac{2}{3}}}}$$