

546 Nr. 4) $\left(\frac{x^5 z^{15} y^3}{y^2 y^4 z^7} \right)^{1/2} = \left(\frac{x^8 z^8}{y^6} \right)^{1/2}$

$$\frac{3^2 5^5}{4^7} = \frac{5^5 \cdot 3 \cdot 4^{-7}}{4^{-7} 5^5 3^2} = \frac{x^4 z^4}{y^3} = x^4 y^{-3} z^4 = y^{-3} x^4 z^4 = 2^4 x^4 y^{-3}$$

5) $\frac{5^3 a^3 b^{-9} c^6}{2^6 x^{-4}} : \frac{2^{-4} a^{-4} c^6}{5^{-4} x^{-2} y^6} = \frac{5^3 a^3 b^{-9} c^6 5^{-4} x^{-2} y^6}{2^6 x^{-4} 2^{-4} a^{-4} c^6}$

$$\frac{5^3 a^3 c^6 y^6 x^4 2^4 a^4}{6^9 5^4 x^2 z^6 c^6} = \frac{a^7 y^6 y^2}{5 \cdot 2^2 \cdot 5^9} = \frac{a^7 x^7 y^6}{2069}$$

↑
Kleines B

$$3) \frac{{}^k\sqrt{a^{2-k}}}{({}^k\sqrt{a})^{3k+4}} \cdot \left[\frac{{}^k\sqrt{a}}{({}^k\sqrt{a^2})^{k+3}} \right]^{-2}$$

$$\frac{a^{\frac{2-k}{k}}}{a^{\frac{3k+4}{k}}} \cdot \frac{a^{-\frac{2}{k}}}{a^{\frac{-4k-12}{k}}} = a^{\frac{2-k-(3k+4)-2-(-4k-12)}{k}}$$

$$a^{\frac{2-k-3k-4-2+4k+12}{k}} = a^{\frac{8}{k}} = {}^k\sqrt{a^8}$$

$$6) \left[\frac{2x \sqrt[2]{h^{3x-2}}}{2x \sqrt[2]{h^{4x-4}}} \cdot \left(2x \sqrt[2]{h} \right)^{5x-2} \right]^3$$

$$\left[\frac{h^{\frac{3x-2}{2x}}}{h^{\frac{4x-4}{2x}}} \cdot h^{\frac{5x-2}{2x}} \right]^3 = \left(h^{\frac{3x-2-(4x-4)+5x-2}{2x}} \right)^3$$

$$\left(h^{\frac{\overbrace{3x-2}^{\text{blue}} - \overbrace{4x-4}^{\text{red}} + \overbrace{5x-2}^{\text{blue}}}{2x}} \right)^3 = \left(h^{\frac{4x}{2x}} \right)^3 = (h^2)^3 = h^6$$