

Lösungen zu den Übungen zum 5. Potenzgesetz

$(2^3)^2$	2^6
$(3^3)^3$	3^9
$(-4^3)^2$	4^6
$((-1)^3)^4$	1
$(x^3)^7$	x^{21}
$[(z^2)^3]^4$	z^{24}
$(x^2)^3 \cdot (x^3)^5$	$x^6 \cdot x^{15} = x^{21}$
$(y^3)^8 \cdot (x^4)^7 \cdot (y^2)^9 \cdot (x^6)^1$	$y^{24} \cdot x^{28} \cdot y^{18} \cdot x^6 = x^{34} \cdot y^{42}$
$(a^3)^2 \cdot (b^3)^5 \cdot (c^2)^7 \cdot (b^8)^2 \cdot (a^2)^4$	$a^6 \cdot b^{15} \cdot c^{14} \cdot b^{16} \cdot a^8 = a^{14} b^{31} c^{14}$
$\frac{(a^{14})^2 \cdot (b^4)^4 \cdot (c^2)^{12}}{(a^3)^8 \cdot (b^2)^5 \cdot (c^3)^5}$	$\frac{a^{28} \cdot b^{16} \cdot c^{24}}{a^{24} \cdot b^{10} \cdot c^{15}} = a^4 b^6 c^9$
$[(a^4)^3 \cdot (b^6)^5]^3$	$[a^{12} b^{30}]^3 = a^{36} b^{90}$
$\left[\frac{(x^3)^3 \cdot (y^2)^{10}}{(y^4)^5 \cdot (x^7)^2} \right]^2$	$\left[\frac{x^9 \cdot y^{20}}{y^{20} \cdot x^{14}} \right]^2 = \left[\frac{1}{x^5} \right]^2 = \frac{1}{x^{10}}$
$\left[\frac{(x^2)^3 \cdot (y^7)^{10}}{(y^8)^2 \cdot (x^6)^6} \right]^0$	1
$\frac{(y^3)^7 \cdot (x^3)^6}{(y^2)^8 \cdot (x^5)^6} \div \frac{(y^2)^6 \cdot (x^3)^6}{(y^{10})^8 \cdot (x^5)^9}$	$\frac{(y^3)^7 \cdot (x^3)^6 \cdot (y^{10})^8 \cdot (x^5)^9}{(y^2)^8 \cdot (x^5)^6 \cdot (y^2)^6 \cdot (x^3)^6}$ $= \frac{y^{21} \cdot x^{18}}{y^{16} \cdot x^{30}} \cdot \frac{y^{80} \cdot x^{45}}{y^{12} \cdot x^{18}} = \frac{y^{101} \cdot x^{63}}{y^{28} \cdot x^{48}}$ $= x^{15} y^{73}$
$\left[\frac{(x^{13})^3}{((-y)^4)^2} \div \frac{(x^7)^{10}}{(y^4)^6} \right]^3$	$\left[\frac{(x^{13})^3}{((-y)^4)^2} \cdot \frac{(y^4)^6}{(x^7)^{10}} \right]^3$ $= \left[\frac{x^{39}}{y^8} \cdot \frac{y^{24}}{x^{70}} \right]^3$ $= \left[\frac{y^{16}}{x^{31}} \right]^3 = \frac{y^{48}}{x^{93}}$