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POTENZEN – LÖSUNG

① a) $x^3 \cdot x^4 = x^{3+4} = x^7$

b) $a^5 \cdot a^2 = a^{5+2} = a^7$

c) $a^3 \cdot a^{-4} = a^{3-4} = a^{-1}$

d) $a^3 \cdot a^{-3} = a^{3-3} = a^0 = 1$

② a) $x^3 : x^4 = x^{3-4} = x^{-1}$

b) $a^3 : a^{-4} = a^{3-(-4)} = a^{3+4} = a^7$

c) $-a^{-2} : a^2 = -a^{-2-2} = -a^{-4}$

$2 + 3$	5
$2 - 3$	-1
$-2 + 3$	1
$-2 - 3$	-5
$2 \cdot 3$	6
$2 \cdot (-3)$	-6
$(-2) \cdot 3$	-6
$(-2) \cdot (-3)$	6

③ a) $(x^3)^2 = x^{3 \cdot 2} = x^6$

b) $(x^{-2})^3 = x^{-2 \cdot 3} = x^{-6}$

c) $(a^2 b)^3 = a^{2 \cdot 3} \cdot b^3 = a^6 \cdot b^3$

d) $(x^{\frac{4}{3}})^6 = x^{\frac{4}{3} \cdot 6} = x^{\frac{24}{3}} = x^2$

④ a) $(x^3 y^2 x^{-2})^4 = (x^1 y^2)^4 = x^4 y^8$

b) $\frac{x^3}{x^2} = x^{3-2} = x$

c) $\frac{x^3}{x^7} = x^{3-7} = x^{-4}$

d) $\frac{x^3}{x^{-3}} = x^{3-(-3)} = x^6$

e) $\frac{x^3 y^3 z^{-2}}{x^5 y^{-2} z^3} = x^{-1} y^5 z^{-5}$

f) $\frac{x^{-3} y^2 z}{y x^4 z^3} = x^{-5} y z^{-2}$

g) $\left(\frac{x^2 y}{x y^2}\right)^3 = \left(\frac{x}{y}\right)^3 = \frac{x^3}{y^3} \left(= x^3 y^{-3}\right)$