

Auf

a) $3x^2 \cdot 2x^3 = 6x^5$

b) $7v^{-3} \cdot 8v^2 = 56 \cdot v^{-1} = \frac{56}{v}$

c) $a^2b \cdot ab^3 = \cancel{(ab)}^3 \rightarrow a^2 \cdot b^1 \cdot a \cdot b^3 = a^3b^4$

d) $b^3c \cdot 2c^4 = 2b^3c^5$

e) $2a^4y \cdot 4y^3 = 8a^4y^4 = 8(ay)^4$

f) $\frac{1}{2}a^2 \cdot \frac{1}{3}a = \frac{1}{6}a^3$

g) $\frac{1}{6}c^3 \cdot \frac{3}{4}c^4 = \frac{1}{8}c^7 = \frac{3}{6 \cdot 4} c^{(3+4)} = \frac{3}{24} \cdot c^7 = \frac{1}{8}c^7$

h) $\frac{5}{8}ab^3 \cdot \frac{5}{3}a^4 = \frac{25}{24}a^5b^3$

i) $\frac{7}{3}x^4 \cdot 8xy^2 = \frac{56}{3}x^5y^2$

j) $b^{n-1} \cdot b^{n+1} \cdot b^{3-2n} = b^3 = b^{(\cancel{n+1} + \cancel{n-1} + 3 - 2n)} = b^3$

k) $c^{4x-5} \cdot c^{8-3x} \cdot c^{2x-3} = c^{3x}$

l) $128 \cdot 2^{n-7} = 128 \cdot \frac{2^n}{2^7} = \frac{128}{128} \cdot 2^n = 2^n$

$$\frac{2^n}{2^7} = 2^{n-7}$$

!sb.bayern.de → Merkhilfe Mathe

m) $243 \cdot 3^{n-5} = 243 \cdot \frac{3^n}{3^5} = 3^n$

n) $256 \cdot 4^{x-4} = 256 \cdot \frac{4^x}{4^4} = \frac{256}{4^4} \cdot 4^x = 4^x$

o) $\frac{(k-3)^4}{(3-k)^3} = (k-3)^4 (3-k)^{-3} = \frac{(k-3)^4}{(-1)(k-3)^3} = (-1) \cdot \frac{(k-3)^4}{(k-3)^3} = (-1) \cdot (k-3)^{4-3} = -(k-3) = -k+3 = \underline{\underline{3-k}}$

p) $\frac{x^{2n+1}}{x^n} = x^{2n+1-n} = x^{n+1}$

$$q, \quad \frac{15e^{x+1}}{5e^x} = \frac{15}{5} \cdot \frac{e^{x+1}}{e^x} = 3 \cdot e^{x+1-x} = 3e^1 = 3e$$

$$r, \quad \frac{2a^{1-2n}}{4a^{n+1}} = \frac{2}{4} \cdot \frac{a^{1-2n}}{a^{n+1}} = \frac{1}{2} a^{-3n} = \frac{1}{2a^{3n}} = \frac{1}{2} a^{1-2n-(n+1)} = \frac{1}{2} a^{1-2n-n-1}$$

$$s, \quad \left(\frac{x}{2}\right)^3 : \left(\frac{x}{3}\right) = \frac{x^3}{8} : \frac{x}{3} = \frac{x^3}{8} \cdot \frac{3}{x} = \frac{3}{8} x^2$$

$$\frac{\left(\frac{x}{2}\right)^3}{\left(\frac{x}{3}\right)} = \frac{\frac{x^3}{2^3}}{\frac{x}{3}} = \frac{\frac{1}{2^3}}{\frac{1}{3}} \cdot \frac{x^3}{x} = \frac{\frac{1}{8}}{\frac{1}{3}} \cdot x^2 = \frac{3}{8} x^2$$