



$$\begin{aligned} \text{d)} \quad & \frac{25}{96}m^4 - \frac{5}{16}m^2w^2 + \frac{55}{16}m^2w^2 - \frac{33}{8}w^4 = \frac{25}{96}m^4 + \frac{25}{8}m^2w^2 - \frac{33}{8}w^4 \\ \text{e)} \quad & -\frac{5}{18}t^4 - \frac{5}{12}t^2w + \frac{4}{15}t^2w + \frac{2}{5}w^2 = -\frac{5}{18}t^4 - \frac{3}{20}t^2w + \frac{2}{5}w^2 \\ \text{f)} \quad & \frac{35}{36}s^2 - 2su - \frac{1}{9}su + \frac{8}{35}u^2 = \frac{35}{36}s^2 - \frac{19}{9}su + \frac{8}{35}u^2 \end{aligned}$$

✂ Lösung zu Aufgabe 1.14 ex-ausmultiplizieren-bruch-monomie

$$\begin{aligned} \text{a)} \quad & -\frac{15}{22}n^4w^2 - \frac{33}{5n^4w^8} - \frac{3}{w^3} - \frac{3}{2w^3} = -\frac{15}{22}n^4w^2 - \frac{33}{5n^4w^8} - \frac{9}{2w^3} \\ \text{b)} \quad & -\frac{9f^6}{16w^4} + \frac{25w^6}{44f^6} - \frac{45}{88}w + \frac{5}{8}w = -\frac{9f^6}{16w^4} + \frac{25w^6}{44f^6} + \frac{5}{44}w \\ \text{c)} \quad & -\frac{27a^4}{8w^2} - \frac{81}{8}a^2 - \frac{15}{8}a^2 - \frac{45}{8}w^2 = -\frac{27a^4}{8w^2} - 12a^2 - \frac{45}{8}w^2 \\ \text{d)} \quad & -\frac{3}{7}p^6t^2 + \frac{7}{6p^6t^4} - \frac{5}{3t} + \frac{3}{10t} = -\frac{3}{7}p^6t^2 + \frac{7}{6p^6t^4} - \frac{41}{30t} \end{aligned}$$

✂ Lösung zu Aufgabe 1.15 ex-ausklammern-nennerfrei

$$\begin{aligned} \text{a)} \quad & \frac{1}{4ck^2} \cdot (3 - 5c^4k^4) & \text{b)} \quad & \frac{x^2}{8g^3} \cdot (-3g^4 + 10x) & \text{c)} \quad & \frac{2k^2}{21b^3} \cdot (-35b^4 - 6k) & \text{d)} \quad & \frac{m}{35p^2} \cdot (28 - 25p^4) \\ \text{e)} \quad & \frac{1}{10k^2q^3} \cdot (9 + 4kq^6) & \text{f)} \quad & \frac{q}{10m^3} \cdot (14 + 5m^2q^2) & \text{g)} \quad & \frac{e^2}{2s^2} \cdot (-7e - s^5) & \text{h)} \quad & \frac{y}{5b} \cdot (-3 + 4y^2) \end{aligned}$$

✂ Lösung zu Aufgabe 1.16 ex-doppelbrueche

$$\begin{aligned} \text{a)} \quad & \frac{\frac{2}{3} + \frac{3}{4}}{\frac{1}{2} + \frac{\frac{2}{3}}{4}} = \frac{\frac{8}{12} + \frac{9}{12}}{\frac{1}{2} + \frac{2}{3} \cdot \frac{1}{4}} = \frac{\frac{17}{12}}{\frac{1}{2} + \frac{2}{12}} = \frac{\frac{17}{12}}{\frac{6}{12} + \frac{2}{12}} = \frac{\frac{17}{12}}{\frac{8}{12}} = \frac{17}{12} \cdot \frac{12}{8} = \frac{17}{8} \\ \text{b)} \quad & \frac{2 - \frac{4}{3}}{\frac{\frac{2}{3}}{4} + 2} - \frac{2}{3} = \frac{\frac{6}{3} - \frac{4}{3}}{\frac{2}{1} \cdot \frac{4}{3} + 2} - \frac{2}{3} = \frac{\frac{2}{3}}{\frac{8}{3} + \frac{6}{3}} - \frac{2}{3} = \frac{\frac{2}{3}}{\frac{14}{3}} - \frac{2}{3} = \frac{2}{14} - \frac{2}{3} = \frac{1}{7} - \frac{2}{3} = -\frac{11}{21} \\ \text{c)} \quad & \frac{\frac{8^2+6^2+5^2}{2 \cdot (2^5-3^3)^2}}{\left(\frac{5}{4}\right)^3} = \frac{\frac{64+36+25}{2 \cdot (32-27)^2}}{\frac{5^3}{4^3}} = \frac{125}{2 \cdot (5)^2} \cdot \frac{4^3}{5^3} = \frac{2^6}{2 \cdot 5^2} \cdot \frac{2^6}{5^3} = \frac{32}{25} \\ \text{d)} \quad & -2 - \frac{-2 - \left(\frac{2}{3}\right)^2}{-\frac{2}{-3}} = -2 - \frac{-2 - \frac{4}{9}}{-\frac{2}{3}} = -2 - \frac{-2 - \frac{4}{9}}{-2 \cdot \left(-\frac{2}{3}\right)} = -2 - \frac{-\frac{18}{9} - \frac{4}{9}}{\frac{4}{3}} = -2 - \left(-\frac{22}{9}\right) \cdot \frac{3}{4} = -2 - \left(-\frac{11}{6}\right) = -\frac{12}{6} + \frac{11}{6} = -\frac{1}{6} \\ \text{e)} \quad & 1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}} = 1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{2}}} = 1 + \frac{1}{1 + \frac{1}{\frac{3}{2}}} = 1 + \frac{1}{1 + \frac{2}{3}} = 1 + \frac{1}{\frac{5}{3}} = 1 + \frac{3}{5} = \frac{8}{5} \\ \text{f)} \quad & \left(\frac{117}{127}\right)^4 \cdot \frac{1}{127} = \frac{117^4}{127^4} \cdot \frac{127^5}{117^3} \cdot \frac{1}{117} \cdot \frac{1}{127} = \frac{117^4 \cdot 127^5}{127^4 \cdot 117^3 \cdot 117 \cdot 127} = \frac{117^4 \cdot 127^5}{127^5 \cdot 117^4} = 1 \end{aligned}$$

✂ Lösung zu Aufgabe 1.17 ex-potenzgesetze-brueche

$$\begin{aligned} \text{a)} \quad & \frac{(2^2 \cdot 5^2)^4}{(5^2)^3} \cdot \frac{1}{(5^2)^3} = \frac{(2^2)^4 \cdot (5^2)^4}{2^7 \cdot 5^6} = \frac{2^8 \cdot 5^8}{2^7 \cdot 5^6} = 2 \cdot 5^2 = 2 \cdot 25 = 50 \\ \text{b)} \quad & \frac{(2^4)^5}{(2^3)^6} = \frac{2^{20}}{2^{18}} = 2^2 = 4 \\ \text{c)} \quad & \frac{3^9}{3^6} = 3^3 = 27 \end{aligned}$$