

Lösungen:

1	<p>Bitte berechnen Sie</p> <p>a) $(v^2 - 1)(-10ku^2 - 9)$</p> <p>L: $-10ku^2v^2 - 9v^2 + 10ku^2 + 9$</p> <p>b) $(-2k^2 - kv^2)(-3kv^2 - k^2)$</p> <p>L: $7k^3v^2 + 2k^4 + 3k^2v^4$</p> <p>c) $(8u - 11)(kv + 1)(4k + 5)(-2k + 3)$</p> <p>L: $-64k^3uv + 16k^2uv + 120kuv - 64k^2u + 16ku + 120u + 88k^3v - 22k^2v - 165kv + 88k^2 - 22k - 165$</p> <p>d) $(ku + 1)(-7ku + 2)$</p> <p>L: $-7k^2u^2 - 5ku + 2$</p> <p>e) $(-k - 3)(-8k + 7)(-12v - uv)$</p> <p>L: $-96k^2v - 8k^2uv - 204kv - 17kuv + 252v + 21uv$</p>
2	<p>Bitte berechnen Sie mit Lösungsweg und ohne Taschenrechner:</p> <p>a)</p> $\frac{5}{-4} + \frac{8}{3} + \frac{7}{-6}$ <p>L: $\frac{1}{4}$</p> <p>b)</p> $-\frac{-3}{8} - \frac{1}{7}$ <p>L: $\frac{13}{56}$</p> <p>c)</p> $\frac{2}{-9} - \frac{3}{2} + \frac{8}{5} - \frac{-9}{-8}$ <p>L: $-\frac{449}{360}$</p> <p>d)</p> $\frac{7}{4} - \frac{5}{-6}$ <p>L: $\frac{31}{12}$</p>

3

Bitte berechnen Sie mit Lösungsweg und ohne Taschenrechner:

a)

$$\frac{\left(\frac{8}{-9} - \frac{-3}{10}\right) * \frac{-5}{2}}{\left(-\frac{8}{9} + \frac{3}{4}\right) * \frac{-10}{-3}}$$

$$L: \quad - \frac{159}{50}$$

b)

$$\frac{\left(\frac{-8}{3} - \frac{7}{5}\right) * \frac{5}{2}}{\left(\frac{-4}{3} - \frac{-8}{5}\right) * \frac{4}{-5}}$$

$$L: \quad \frac{1525}{32}$$

c)

$$\frac{\left(-\frac{3}{-10} - \frac{7}{-6}\right) * \frac{-9}{5}}{\left(-\frac{-2}{3} - \frac{10}{3}\right) * \frac{-10}{7}}$$

$$L: \quad - \frac{693}{1000}$$

d)

$$\frac{\left(-\frac{-3}{-4} - \frac{-2}{-5}\right) * \left(\frac{3}{2} - \frac{4}{-3}\right)}{\left(\frac{3}{10} + \frac{-1}{2}\right) * \left(\frac{-1}{-4} + \frac{1}{6}\right)}$$

$$L: \quad \frac{391}{10}$$

e)

$$\frac{\left(\frac{-1}{6} + \frac{-7}{-8}\right) * \left(-\frac{2}{-5} - \frac{-9}{-8}\right)}{\left(\frac{-4}{7} + \frac{-7}{-6}\right) * \left(-\frac{-3}{-10} - \frac{-1}{10}\right)}$$

$$L: \quad \frac{3451}{800}$$

f)

$$\frac{\frac{-6}{-5} * \frac{1}{4} * \frac{-7}{-4} * \frac{5}{-2} * \frac{-2}{-3} * \frac{-9}{-5}}{\frac{-1}{6} * \frac{1}{7} * \frac{7}{-10} * \frac{7}{4} * \frac{1}{8} * \frac{-9}{-7}}$$

$$L: \quad - 336$$

g)

$$\frac{\frac{7}{-6} * \frac{7}{-10} * \frac{-1}{-8} * \frac{3}{-4} * \frac{-7}{8} * \frac{2}{3}}{\frac{-1}{-4} * \frac{8}{7} * \frac{7}{10} * \frac{7}{9} * \frac{7}{-4} * \frac{-9}{-8}}$$

$$L: \quad - \frac{7}{48}$$

4	<p>Bitte nennen Sie die Bruchrechenregeln für die Addition, die Multiplikation & die Division.</p> $\frac{a}{b} + \frac{c}{b} = \frac{a+c}{b}$ $\frac{a}{b} + \frac{c}{d} = \frac{ad+cb}{bd}$ $\frac{a}{b} - \frac{c}{b} = \frac{a-c}{b}$ $\frac{a}{b} - \frac{c}{d} = \frac{ad-cb}{bd}$ $\frac{a}{b} \cdot \frac{c}{d} = \frac{a \cdot c}{b \cdot d}$ $\frac{a}{b} : \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c} = \frac{ad}{bc}$
5	<p>Bitte berechnen Sie</p> <p>a)</p> $\frac{5jx - 4no}{-f - 2} - \frac{6c + 1}{2o - 5}$ <p>L :</p> $\frac{5jx - 4no}{-f - 2} - \frac{6c + 1}{2o - 5} = \frac{10jox - 25jx - 8no^2 + 20no + 6cf + f + 12c + 2}{-2fo + 5f - 4o + 10}$ <p>b)</p> $\frac{7i - 10}{h - 1} - \frac{7i - 4}{-h + 5hi}$ <p>L :</p> $\frac{7i - 10}{h - 1} - \frac{7i - 4}{-h + 5hi} = \frac{-64hi + 14h + 35hi^2 + 7i - 4}{-h^2 + 5h^2i + h - 5hi}$ <p>c)</p> $\frac{5er - 4}{-r + 2e} + \frac{-4er - 3hr}{-7h + 8}$ <p>L :</p> $\frac{5er - 4}{-r + 2e} + \frac{-4er - 3hr}{-7h + 8} = \frac{-41ehr + 40er + 28h - 32 + 4er^2 + 3hr^2 - 8e^2r}{7hr - 8r - 14eh + 16e}$