Lösungen:

1	Bitte berechnen Sie a) $$\frac{11,9p - 4,7g}{-2,6f - 11,5k} - \frac{3,9j - 11,6}{-4,6r - 6w}$$ $$L:$$ $$\frac{-54,74pr - 71,4pw + 21,62gr + 28,2gw + 10,14fj - 30,16f + 44,85jk - 133,4k}{11,96fr + 15,6fw + 52,9kr + 69kw}$$ b) $$\frac{3,7e + 4,3z}{4,1o - 2,5g} + \frac{-12z - 6,5}{-6,9p + 5}$$ $$L:$$ $$\frac{-25,53ep + 18,5e - 29,67pz + 21,5z - 49,2oz - 26,65o + 30gz + 16,25g}{-28,29op + 20,5o + 17,25gp - 12,5g}$$ c) $$\frac{-4,9h - 10,6}{-7y + 5,2j} - \frac{-2,2i - 1,4}{-11e - 10,6k}$$ $$L:$$ $$\frac{53,9eh + 51,94hk + 116,6e + 112,36k - 15,4iy - 9,8y + 11,44ij + 7,28j}{77ey + 74,2ky - 57,2ej - 55,12jk}$$
2	Bitte kürzen Sie a) $$\frac{-6aj^2s^2 - 12as^2}{-30ao^2s^2t^2 + 42as^2u}$$ $$L:$$ $$\frac{-6aj^2s^2 - 12as^2}{-30ao^2s^2t^2 + 42as^2u} = \frac{-j^2 - 2}{-5o^2t^2 + 7u} \quad [6as^2]$$ b) $$\frac{-11gh^2kst + 55f^2gkotv + 99g^2kt}{44c^2gkt + 55d^2f^2gkt^3 + 110dgkt}$$ $$L:$$ $$\frac{-11gh^2kst + 55f^2gkotv + 99g^2kt}{44c^2gkt + 55d^2f^2gkt^3 + 110dgkt} = \frac{-h^2s + 5f^2ov + 9g}{4c^2 + 5d^2f^2t^2 + 10d} \quad [11gkt]$$ $$\frac{45a^2g^2qx^2 + 18a^2c^2g^2v - 45a^2g^2j^2o}{-45a^2e^2g^2v^2 - 9a^2e^2g^2m + 90a^2g^2o^2u^2}$$ c) $$L:$$ $$\frac{45a^2g^2qx^2 + 18a^2c^2g^2v - 45a^2g^2j^2o}{-45a^2e^2g^2v^2 - 9a^2e^2g^2m + 90a^2g^2o^2u^2} = \frac{5qx^2 + 2c^2v - 5j^2o}{-5e^2v^2 - e^2m + 10o^2u^2} \quad [9a^2g^2]$$

3	Bitte berechnen Sie mit Lösungsweg:

a) $\dfrac{\left(-\frac{-8}{-3}+\frac{5}{6}+\frac{2}{-9}\right)*\frac{3}{-8}}{\left(\frac{1}{8}+\frac{-4}{-9}-\frac{3}{2}\right)*\frac{-9}{-2}}$ | L: $-\dfrac{37}{201}$

b) $\dfrac{\frac{-5}{-8}*\frac{-6}{7}*\frac{-1}{-2}*\frac{-9}{-10}*\frac{7}{-6}*\frac{-2}{9}*\frac{-8}{-3}*\frac{-8}{-3}}{\frac{4}{-5}*\frac{-1}{2}*\frac{-9}{2}*\frac{9}{-4}*\frac{-5}{-3}*\frac{-7}{-10}*\frac{-2}{7}*\frac{7}{6}}$ | L: $\dfrac{160}{567}$

c) $\dfrac{\left(\frac{10}{3}-\frac{-7}{6}+\frac{3}{-4}\right)*\left(\frac{-2}{9}-\frac{-3}{10}+\frac{7}{6}\right)}{\left(-\frac{1}{2}-\frac{7}{8}+\frac{-3}{-8}\right)*\left(-\frac{-5}{-2}+\frac{-1}{-2}+\frac{-1}{5}\right)}$ | L: $\dfrac{70}{33}$

Bitte bringen Sie's in die Form $(\square+\square)(\square+\square)$:

a) $6c^2 + 66c + 7cf + 77f$ | **L: (-6c - 7f)(-c - 11)**
b) $-12qu + 40u + 9qr - 30r$ | **L: (4u - 3r)(-3q + 10)**
c) $-21gp + 36p - 7g^2 + 12g$ | **L: (-3p - g)(7g - 12)**
d) $-32kx + 8k - 20x^2 + 5x$ | **L: (-8k - 5x)(4x - 1)**
e) $-9p^2 - 12ps + 32s^2$ | **L: (3p - 4s)(-3p - 8s)**
f) $-16dt + 6dh - 24t + 9h$ | **L: (2d + 3)(-8t + 3h)**
g) $20m^2 - 21m + 4$ | **L: (-5m + 4)(-4m + 1)**
h) $5e^2 - 16e + 12$ | **L: (5e - 6)(e - 2)**