Lösungen:

1	Bitte rechnen Sie aus: a) $(7g + 6o)^2$ | L: $49g^2 + 84go + 36o^2$ b) $(5w - 11)(5w + 11)$ | L: $25w^2 - 121$ c) $(-7i - 2)^2$ | L: $49i^2 + 28i + 4$ d) $(-5w - 3d)(-5w + 3d)$ | L: $25w^2 - 9d^2$ e) $(2y + 1)(2y - 1)$ | L: $4y^2 - 1$ f) $(6,3q - 3,1)^2$ | L: $39,69q^2 - 39,06q + 9,61$ g) $(1,5a - 7,1)^2$ | L: $2,25a^2 - 21,3a + 50,41$ h) $(11,9m - 5,5)^2$ | L: $141,61m^2 - 130,9m + 30,25$ i) $(-1,5y + 10,9)^2$ | L: $2,25y^2 - 32,7y + 118,81$ j) $(5,7n - 6,9)^2$ | L: $32,49n^2 - 78,66n + 47,61$
2	Bitte rechnen Sie aus: a) $$\frac{cq - 3}{wz + 2} - \frac{4ek + 1}{-9pq - ci}$$ L : $$\frac{cq - 3}{wz + 2} - \frac{4ek + 1}{-9pq - ci} = \frac{-9cpq^2 - c^2iq + 27pq + 3ci - 4ekwz - wz - 8ek - 2}{-9pqwz - ciwz - 18pq - 2ci}$$ b) $$\frac{-6v + 1}{-5b - 6v} + \frac{5b - 9u}{5u + 1}$$ L : $$\frac{-6v + 1}{-5b - 6v} + \frac{5b - 9u}{5u + 1} = \frac{24uv - 6v + 5u + 1 - 25b^2 + 45bu - 30bv}{-25bu - 5b - 30uv - 6v}$$ c) $$\frac{-3v + 11}{-2b - 3a} + \frac{10u - 1}{-9v - 2}$$ L : $$\frac{-3v + 11}{-2b - 3a} + \frac{10u - 1}{-9v - 2} = \frac{27v^2 - 93v - 22 - 20bu + 2b - 30au + 3a}{18bv + 4b + 27av + 6a}$$ d) $$\frac{10u - 11v}{-2u + 11a} - \frac{v + 2a}{6v + 5u}$$ L : $$\frac{10u - 11v}{-2u + 11a} - \frac{v + 2a}{6v + 5u} = \frac{7uv + 50u^2 - 66v^2 + 4au - 11av - 22a^2}{-12uv - 10u^2 + 66av + 55au}$$

3	Bitte kürzen Sie:

a)

$$\frac{-70rt - 21t^2 + 35t}{56st + 63rt + 70t}$$

L :

$$\frac{-70rt - 21t^2 + 35t}{56st + 63rt + 70t} = \frac{-10r - 3t + 5}{8s + 9r + 10} \quad [7t]$$

b)

$$\frac{10rt - 5t^2 - 60t}{40rt - 55t^2 + 20t}$$

L :

$$\frac{10rt - 5t^2 - 60t}{40rt - 55t^2 + 20t} = \frac{2r - t - 12}{8r - 11t + 4} \quad [5t]$$

c)

$$\frac{27st - 21rs - 27s}{-3rs + 33s^2 - 21s}$$

L :

$$\frac{27st - 21rs - 27s}{-3rs + 33s^2 - 21s} = \frac{9t - 7r - 9}{-r + 11s - 7} \quad [3s]$$

4	Bitte rechnen Sie aus:

a)

$$\frac{\left(-\frac{-5}{8} + \frac{-9}{4}\right) \cdot \left(-\frac{-4}{7} - \frac{-7}{-6}\right)}{\left(-\frac{-5}{-8} + \frac{-7}{-6}\right) \cdot \left(-\frac{7}{-9} - \frac{7}{-8}\right)}$$

L: $\frac{900}{833}$

b)

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

L: $-\frac{80}{147}$

c)

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

L: $-\frac{162}{2021}$

d)

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

L: $-\frac{2}{9}$

e)

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

L: $\frac{3321}{7480}$