Lösungen:

1	Bitte berechnen Sie

a) $(-2w + 1)(3w - 5)$ | L: $-6w^2 + 13w - 5$
b) $(11k - 7r)(-5k - 9)$ | L: $-55k^2 - 99k + 35kr + 63r$
c) $(-9o - 2)(-o - d)$ | L: $9o^2 + 9do + 2o + 2d$
d) $(-10e + 3)(6m + w)(7b + 10a)$
   L: $-420bem - 600aem - 70bew - 100aew + 126bm + 180am + 21bw + 30aw$

e) $(x - 1)(-x + 2)(-x + 12)$ | L: $x^3 - 15x^2 + 38x - 24$
f) $(-5o - 2e)(9e - 8)(10d - b)$
   L: $-450deo + 45beo + 400do - 40bo - 180de^2 + 18be^2 + 160de - 16be$

g) $(-3v - 2k - 12h)(-2k - 11h - 8)$ | L: $6kv + 33hv + 24v + 4k^2 + 46hk + 16k + 132h^2 + 96h$
h) $(-z - 5w - 7)(w + 3z + 7)$ | L: $-16wz - 3z^2 - 28z - 5w^2 - 42w - 49$
i) $(-11r + 3i - c)(-6i + c + 5r)$ | L: $81ir - 16cr - 55r^2 - 18i^2 + 9ci - c^2$
j) $(-8,6g - 4,6)(9,3v - 9,8)$ | L: $-79,98gv + 84,28g - 42,78v + 45,08$
k) $(2,6k + 2o)(9,2k - 8,2o)$ | L: $23,92k^2 - 2,92ko - 16,4o^2$
l) $(-3,6x - 9,7)(9,8s + 1,4)$ | L: $-35,28sx - 5,04x - 95,06s - 13,58$

2	Bitte berechnen Sie

a)
$$\frac{\frac{3}{2} * \frac{-9}{-5} * \frac{-6}{-7} * \frac{-4}{-7} * \frac{3}{10} * \frac{-5}{-9}}{\frac{-1}{-6} * \frac{1}{2} * \frac{2}{-9} * \frac{-8}{3} * \frac{-3}{-2} * \frac{9}{-7}}$$ | L: $-\dfrac{81}{35}$

b)
$$\frac{\left(\frac{8}{-3} + \frac{-4}{-5} + \frac{-9}{5}\right) * \frac{7}{4}}{\left(-\frac{-1}{-3} - \frac{6}{-5} + \frac{-10}{-3}\right) * \frac{-9}{-7}}$$ | L: $-\dfrac{385}{324}$

c)
$$\frac{\left(\frac{7}{10} - \frac{-2}{-3} - \frac{1}{8}\right) * \left(-\frac{7}{6} + \frac{8}{3} + \frac{-1}{2}\right)}{\left(-\frac{7}{-10} - \frac{6}{-7} - \frac{6}{7}\right) * \left(-\frac{3}{-2} - \frac{-6}{-5} + \frac{-6}{7}\right)}$$ | L: $\dfrac{55}{234}$

d)
$$\frac{\left(-\frac{7}{-10} + \frac{1}{-4}\right) * \frac{1}{9}}{\left(-\frac{9}{5} - \frac{-4}{-7}\right) * \frac{-9}{-2}}$$ | L: $-\dfrac{7}{1494}$

e)
$$\frac{\frac{-5}{-6} * \frac{-7}{-9} * \frac{-1}{-2} * \frac{1}{6} * \frac{-1}{-8} * \frac{5}{-4}}{\frac{5}{3} * \frac{-5}{-4} * \frac{-5}{7} * \frac{-1}{-6} * \frac{-9}{4} * \frac{-7}{6}}$$ | L: $\dfrac{7}{540}$

3	Bitte berechnen Sie

a)
$$\frac{-t - 2}{-10y + 7v} + \frac{-x - 4}{5x + 3y}$$

L :

$$\frac{-t - 2}{-10y + 7v} + \frac{-x - 4}{5x + 3y} = \frac{34y - 5tx - 3ty - 10x + 10xy - 7vx - 28v}{-50xy - 30y^2 + 35vx + 21vy}$$

b)

$$\frac{-x - 2u}{5n + 4} - \frac{-10m - 1}{7z + 12}$$

L :

$$\frac{-x - 2u}{5n + 4} - \frac{-10m - 1}{7z + 12} = \frac{-7xz - 12x - 14uz - 24u + 50mn + 5n + 40m + 4}{35nz + 60n + 28z + 48}$$