

Lösungen:

1	<p>Bitte berechnen Sie</p> <p>a)</p> $\frac{-6,8m^2x^2 - 8,5m}{-4,6m - 6,7m^2} - \frac{-9,8m + 5,6x^2}{-11,2m^2x - 4,7m^2}$ <p>L :</p> $\frac{-25,71m^3 + 76,16m^4x^3 + 31,96m^4x^2 + 95,2m^3x - 45,08m^2 + 25,76mx^2 + 37,52m^2x^2}{51,52m^3x + 21,62m^3 + 75,04m^4x + 31,49m^4}$ <p>oder, besser:</p> $\frac{-25,71m^2 + 76,16m^3x^3 + 31,96m^3x^2 + 95,2m^2x - 45,08m + 25,76x^2 + 37,52mx^2}{51,52m^2x + 21,62m^2 + 75,04m^3x + 31,49m^3}$ <p>b)</p> $\frac{-9,5p + 4,9}{6,2p^2 - 3p} - \frac{-7,2pq^2 + 2,7q}{5,1pq^2 + 5,3}$ <p>L :</p> $\frac{-70,05p^2q^2 - 50,35p + 24,99pq^2 + 25,97 + 44,64p^3q^2 - 16,74p^2q + 8,1pq}{31,62p^3q^2 + 32,86p^2 - 15,3p^2q^2 - 15,9p}$
2	<p>Bitte bestimmen Sie nacheinander die angegebenen Unbekannten:</p> <p>a)</p> $kp + 3sz = 3fh - 4 \quad [k \ p \ h \ f]$ <p>L :</p> $k = \frac{3fh - 4 - 3sz}{p}$ $p = \frac{3fh - 4 - 3sz}{k}$ $h = \frac{-4 - kp - 3sz}{-3f}$ $f = \frac{-4 - kp - 3sz}{-3h}$ <p>b)</p> $7ov + 2o = -f - 4 \quad [o \ v \ f]$ <p>L :</p> $o = \frac{-f - 4}{7v + 2}$ $v = \frac{-f - 4 - 2o}{7o}$ $f = -4 - 7ov - 2o$

c)

$$-d + gs = -5k - 4dk \quad [d \ s \ g \ k]$$

L :

$$d = \frac{-5k - gs}{4k - 1}$$

$$s = \frac{-5k - 4dk + d}{g}$$

$$g = \frac{-5k - 4dk + d}{s}$$

$$k = \frac{d - gs}{5 + 4d}$$

d)

$$1,7u - 9,2h = 2,9cn + 4,2cj \quad [u \ h \ c \ j]$$

L :

$$u = \frac{2,9cn + 4,2cj + 9,2h}{1,7}$$

$$h = \frac{2,9cn + 4,2cj - 1,7u}{-9,2}$$

$$c = \frac{-1,7u + 9,2h}{-2,9n - 4,2j}$$

$$j = \frac{2,9cn - 1,7u + 9,2h}{-4,2c}$$

e)

$$8,5hm - 5,7m = 5,8bh - 8,2pu \quad [h \ m \ u \ p]$$

L :

$$h = \frac{-8,2pu + 5,7m}{-5,8b + 8,5m}$$

$$m = \frac{5,8bh - 8,2pu}{8,5h - 5,7}$$

$$u = \frac{5,8bh - 8,5hm + 5,7m}{8,2p}$$

$$p = \frac{5,8bh - 8,5hm + 5,7m}{8,2u}$$

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Bitte bestimmen Sie nacheinander die angegebenen Unbekannten:

a)

$$\frac{-10t + 9w}{-w - cw} - j = -5g \quad [t \ w \ c]$$

L :

$$t = \frac{5gw + 5cgw - jw - cjw - 9w}{-10}$$

$$w = \frac{10t}{-5g - 5cg + j + cj + 9}$$

$$c = \frac{5gw - jw + 10t - 9w}{-5gw + jw}$$

b)

$$\frac{-3p - 1}{-i - 2gi} + 5o = 7x \quad [p \ i \ g]$$

L :

$$p = \frac{-7ix - 14gix + 5io + 10gio + 1}{-3}$$

$$i = \frac{3p + 1}{7x + 14gx - 5o - 10go}$$

$$g = \frac{-7ix + 5io + 3p + 1}{14ix - 10io}$$

c)

$$\frac{-3io + 4iy}{-2kq - iy} - u = -10z \quad [i \ o \ q \ k]$$

L :

$$i = \frac{20kqz - 2kqu}{-10yz + uy - 3o + 4y}$$

$$o = \frac{20kqz + 10iyz - 2kqu - iuy - 4iy}{-3i}$$

$$q = \frac{10iyz - iuy + 3io - 4iy}{-20kz + 2ku}$$

$$k = \frac{10iyz - iuy + 3io - 4iy}{-20qz + 2qu}$$

4 Bitte bestimmen Sie nacheinander alle Unbekannten:

a)

$$\frac{-2d}{5u} = \frac{-9v}{5q}$$

L :

$$d = \frac{9}{2} * \frac{uv}{q}$$

$$u = \frac{2}{9} * \frac{dq}{v}$$

$$v = \frac{2}{9} * \frac{dq}{u}$$

$$q = \frac{9}{2} * \frac{uv}{d}$$

b)

$$\frac{v}{10c} = \frac{5w}{-4h}$$

L :

$$v = \frac{-25}{2} * \frac{cw}{h}$$

$$c = \frac{-2}{25} * \frac{vh}{w}$$

$$w = \frac{-2}{25} * \frac{vh}{c}$$

$$h = \frac{-25}{2} * \frac{cw}{v}$$

c)

$$\frac{s}{-5} = \frac{-5a}{-3}$$

L :

$$s = \frac{-25}{3} * a$$

$$a = \frac{-3}{25} * s$$

d)

$$\frac{2}{9h} = \frac{-1}{2}$$

$$L : \quad h = \frac{-4}{9}$$