

Lösungen:

1	<p>Bitte bestimmen Sie die quadratische Ergänzung</p> <p>a) $96,04e^4 + 66,64e^3$ L: $96,04e^4 + 66,64e^3 + 11,56e^2 = (9,8e^2 + 3,4e)^2$</p> <p>b) $54,76o^2v^4 + 42,92o^2v^2$ L: $54,76o^2v^4 + 42,92o^2v^2 + 8,41o^2 = (7,4ov^2 + 2,9o)^2$</p> <p>c) $x^2 + px$ L: $x^2 + px + 0,25p^2 = (x + 0,5p)^2$</p> <p>d) $32,49j^4m^4t^2 + 103,74d^2f^2j^2m^2t^3$ L: $32,49j^4m^4t^2 + 103,74d^2f^2j^2m^2t^3 + 82,81d^4f^4t^4 = (5,7j^2m^2t + 9,1d^2ft^2)^2$</p> <p>e) $\frac{16}{25}v^2 + \frac{3}{2}vu$ L: $\frac{16}{25}v^2 + \frac{3}{2}vu + \frac{225}{256}u^2 = (\frac{4}{5}v + \frac{15}{16}u)^2$</p> <p>f) $\frac{4}{9}Z^2 + \frac{4}{9}ZX$ L: $\frac{4}{9}Z^2 + \frac{4}{9}ZX + \frac{1}{9}X^2 = (\frac{2}{3}Z + \frac{1}{3}X)^2$</p> <p>g) $\frac{169}{196}m^2 - \frac{26}{9}mj$ L: $\frac{169}{196}m^2 - \frac{26}{9}mj + \frac{196}{81}j^2 = (\frac{13}{14}m - \frac{14}{9}j)^2$</p>
2	<p>Bitte bestimmen Sie die genannten Unbekannten</p> <p>a)</p> $5pr + fp = -2g + 7 \quad [prfg]$ <p>L :</p> $p = \frac{-2g + 7}{5r + f}$ $r = \frac{-2g + 7 - fp}{5p}$ $f = \frac{-2g + 7 - 5pr}{p}$ $g = \frac{7 - 5pr - fp}{2}$ <p>b)</p> $tw + 2w = 8r + 9er \quad [wtre]$ <p>L :</p> $w = \frac{8r + 9er}{t + 2}$ $t = \frac{8r + 9er - 2w}{w}$ $r = \frac{tw + 2w}{8 + 9e}$ $e = \frac{8r - tw - 2w}{-9r}$
3	<p>Bitte erkennen Sie die ursprüngliche binomische Formel</p> <p>a) $33,5241f^2 - 96,4614fq + 69,3889q^2$ L: $(5,79f - 8,33q)^2$</p> <p>b) $13,1044o^2w^2 - 24,9001r^2$ L: $(3,62ow + 4,99r)(3,62ow - 4,99r)$</p> <p>c) $67,24i^2u^2x^4 + 59,04iux^2 + 12,96$ L: $(8,2iux^2 + 3,6)^2$</p> <p>d) $1,96t^2u^2 + 22,708tu + 65,7721$ L: $(1,4tu + 8,11)^2$</p> <p>e) $t^2 - \frac{169}{64}s^2$ L: $(t + \frac{13}{8}s)(t - \frac{13}{8}s)$</p> <p>f) $\frac{81}{25}e^2 - \frac{252}{5}ex + 196x^2$ L: $(\frac{9}{5}e - 14x)^2$</p> <p>g) $\frac{196}{9}j^2 + \frac{280}{27}ja + \frac{100}{81}a^2$ L: $(\frac{14}{3}j + \frac{10}{9}a)^2$</p>

<p>4</p>	<p>Wie muß die Klammerung sein, damit das Ergebnis richtig ist?</p> <p>a) $\frac{2}{9} : \frac{1}{6} : \frac{3}{7} : \frac{8}{7} = \frac{1}{2}$ L: $(\frac{2}{9} : (\frac{1}{6} : \frac{3}{7})) : \frac{8}{7}$ oder $\frac{2}{9} : (\frac{1}{6} : (\frac{3}{7} : \frac{8}{7}))$</p> <p>b) $\frac{1}{2} : \frac{1}{5} : \frac{7}{8} : \frac{6}{5} = \frac{50}{21}$ L: $((\frac{1}{2} : \frac{1}{5}) : \frac{7}{8}) : \frac{6}{5}$</p> <p>c) $\frac{7}{3} : \frac{4}{5} : \frac{6}{7} : \frac{3}{4} = \frac{15}{8}$ L: $\frac{7}{3} : ((\frac{4}{5} : \frac{6}{7}) : \frac{3}{4})$</p>
<p>5</p>	<p>Bitte bringen Sie's in die Form $(\square \pm \square)(\square \pm \square)$</p> <p>a) $-7k^3m^2 + 21km - 5k^2mw^2 + 15w^2$ L: $(7km + 5w^2)(-k^2m + 3)$</p> <p>b) $20i^2m^4su^2 - 30im^2s^2u + 6i^3m^4su - 9i^2m^2s^2$ L: $(-10m^2su - 3im^2s)(-2i^2m^2u + 3is)$</p> <p>c) $4dh^2j^2z + 36h^2n^2r^2 - 5dj^2z - 45n^2r^2$ L: $(-4h^2 + 5)(-dj^2z - 9n^2r^2)$</p> <p>d) $-4q^2r^3 + 4qr^2 - 3qr + 3$ L: $(4qr^2 + 3)(-qr + 1)$</p> <p>e) $4n^2oq^4s^3 + 4o^3q^2s^4 - 5n^3q^2s^3 - 5no^2s^4$ L: $(4oq^2s^2 - 5ns^2)(n^2q^2s + o^2s^2)$</p>
<p>6</p>	<p>Bitte berechnen Sie</p> <p>a) $\frac{(-\frac{11}{4} + \frac{4}{-3}) * (\frac{7}{-4} + \frac{-5}{-4})}{(\frac{-8}{-9} - \frac{11}{-12}) * (-\frac{5}{-3} + \frac{-11}{-3})}$ L: $-\frac{441}{32}$</p> <p>b) $\frac{(\frac{-7}{-4} + \frac{7}{9} - \frac{3}{-2}) * (-\frac{9}{11} + \frac{9}{-11} - \frac{2}{-3})}{(\frac{-5}{-9} + \frac{-7}{12} + \frac{3}{-2}) * (\frac{1}{12} + \frac{7}{-6} + \frac{-7}{-6})}$ L: $-\frac{232}{11}$</p>