

Lösungen:

<b>1</b>	<p>Bitte kürzen Sie soweit wie möglich</p> <p>a)</p> $\frac{60d^2oz^4 + 48d^2i^2w^2z^3 - 72b^2d^2p^2z^2}{36d^2r^2z^2 + 60d^2o^2z^2 - 120d^2m^2sz^2}$ <p>L: <math>\frac{60d^2oz^4 + 48d^2i^2w^2z^3 - 72b^2d^2p^2z^2}{36d^2r^2z^2 + 60d^2o^2z^2 - 120d^2m^2sz^2} = \frac{5oz^2 + 4i^2w^2z - 6b^2p^2}{3r^2 + 5o^2 - 10m^2s} [12d^2z^2]</math></p> <p>b)</p> $\frac{8e^2ou^2v^2 - 2e^2qv}{6e^2ho^2w + 4e^2z}$ <p>L: <math>\frac{8e^2ou^2v^2 - 2e^2qv}{6e^2ho^2w + 4e^2z} = \frac{4ou^2v^2 - qv}{3ho^2w + 2z} [2e^2]</math></p> <p>c)</p> $\frac{-132g^2iq - 24j^2oq - 96quz^2}{12d^2m^2nq - 12q}$ <p>L: <math>\frac{-132g^2iq - 24j^2oq - 96quz^2}{12d^2m^2nq - 12q} = \frac{-11g^2i - 2j^2o - 8uz^2}{d^2m^2n - 1} [12q]</math></p> <p>d)</p> $\frac{14a^2oswy^2 + 77a^2orw - 28a^2ow}{-49a^2ov^2w + 21a^2c^2jovw + 63a^2ors^2w}$ <p>L: <math>\frac{14a^2oswy^2 + 77a^2orw - 28a^2ow}{-49a^2ov^2w + 21a^2c^2jovw + 63a^2ors^2w} = \frac{2sy^2 + 11r - 4}{-7v^2 + 3c^2jv + 9rs^2} [7a^2ow]</math></p> <p>e)</p> $\frac{10b^2n^2t^2 + 60at^2yz^2 + 50t^2}{110ce^2t^2 - 10t^4z + 80t^2}$ <p>L: <math>\frac{10b^2n^2t^2 + 60at^2yz^2 + 50t^2}{110ce^2t^2 - 10t^4z + 80t^2} = \frac{b^2n^2 + 6ayz^2 + 5}{11ce^2 - t^2z + 8} [10t^2]</math></p> <p>f)</p> $\frac{56aknu - 24ad - 72a}{8ac^2oq^2 + 96ac^2 + 24a}$ <p>L: <math>\frac{56aknu - 24ad - 72a}{8ac^2oq^2 + 96ac^2 + 24a} = \frac{7knu - 3d - 9}{c^2oq^2 + 12c^2 + 3} [8a]</math></p> <p>g)</p> $\frac{-4ade^2r^2 - 6a}{-16ajp^2 + 2aem + 12ajm^2o}$ <p>L: <math>\frac{-4ade^2r^2 - 6a}{-16ajp^2 + 2aem + 12ajm^2o} = \frac{-2de^2r^2 - 3}{-8jp^2 + em + 6jm^2o} [2a]</math></p> <p>h)</p> $\frac{4mq^2z - 4dq^2z^2}{-4k^2q^3v^2z + 8mo^2q^2uz - 8q^2z}$ <p>L: <math>\frac{4mq^2z - 4dq^2z^2}{-4k^2q^3v^2z + 8mo^2q^2uz - 8q^2z} = \frac{m - dz}{-k^2qv^2 + 2mo^2u - 2} [4q^2z]</math></p>
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<p>2</p>	<p>Bitte berechnen Sie</p> <p>a) <math display="block">\frac{\left(\frac{-6}{7} + \frac{7}{3}\right) * \left(\frac{7}{8} + \frac{7}{-10}\right)}{\left(\frac{-1}{-9} - \frac{1}{4}\right) * \left(\frac{-3}{-7} - \frac{1}{-6}\right)}</math> L: <math>-\frac{1953}{625}</math></p> <p>b) <math display="block">\frac{\left(\frac{-1}{-8} + \frac{-2}{5}\right) * \left(\frac{9}{5} + \frac{-9}{5}\right)}{\left(\frac{-7}{-3} - \frac{-7}{-6}\right) * \left(\frac{-7}{-4} + \frac{3}{-4}\right)}</math> L: 0</p> <p>c) <math display="block">\frac{\frac{4}{-3} * \frac{-9}{7} * \frac{9}{-10} * \frac{-7}{-9} * \frac{-8}{9} * \frac{-4}{9} * \frac{10}{-7} * \frac{-3}{10}}{\frac{-7}{-2} * \frac{7}{-6} * \frac{-6}{-5} * \frac{-7}{8} * \frac{2}{7} * \frac{-8}{3} * \frac{-5}{-6} * \frac{3}{10}}</math> L: <math>\frac{256}{1029}</math></p> <p>d) <math display="block">\frac{\left(\frac{-5}{2} + \frac{-9}{-10}\right) * \frac{-1}{-6}}{\left(\frac{1}{2} - \frac{6}{7}\right) * \frac{-1}{2}}</math> L: <math>-\frac{112}{75}</math></p> <p>e) <math display="block">\frac{\frac{5}{4} * \frac{-4}{5} * \frac{-5}{3} * \frac{5}{-2} * \frac{-1}{-2} * \frac{7}{6}}{\frac{-4}{-7} * \frac{5}{-9} * \frac{-7}{-6} * \frac{5}{-3} * \frac{-9}{-2} * \frac{7}{3}}</math> L: <math>-\frac{3}{8}</math></p>
<p>3</p>	<p>Bitte berechnen Sie</p> <p>a) <math display="block">\frac{uw^2y + m + 3cuw^2}{-8de^2 + 5j^2 - 6ah^2q} - \frac{-u^2 - b^2co}{12d^2r^2 + 11}</math> L: <math display="block">\frac{12d^2r^2uw^2y + 11uw^2y + 12d^2mr^2 + 11m + 36cd^2r^2uw^2 + 33cuw^2 - 8de^2u^2 - 8b^2cde^2o + 5j^2u^2 + 5b^2cj^2o - 6ah^2qu^2 - 6ab^2ch^2oq}{-96d^3e^2r^2 - 88de^2 + 60d^2j^2r^2 + 55j^2 - 72ad^2h^2qr^2 - 66ah^2q}</math></p> <p>b) <math display="block">\frac{3d^2 + 1}{-6w^2 - 1} + \frac{-11e^2t - 4su}{-t^2 + 2r^2}</math> L: <math display="block">\frac{3d^2 + 1}{-6w^2 - 1} + \frac{-11e^2t - 4su}{-t^2 + 2r^2} = \frac{-3d^2t^2 + 6d^2r^2 - t^2 + 2r^2 + 66e^2tw^2 + 24suw^2 + 11e^2t + 4su}{6t^2w^2 - 12r^2w^2 + t^2 - 2r^2}</math></p> <p>c) <math display="block">\frac{10o^2 + 7}{-8gt - 11a^2g} - \frac{5r - 4m}{-b^2z^2 - 2n^2z^2}</math> L: <math display="block">\frac{-10b^2o^2z^2 - 20n^2o^2z^2 - 7b^2z^2 - 14n^2z^2 + 40grt - 32gmt + 55a^2gr - 44a^2gm}{8b^2gtz^2 + 16gn^2tz^2 + 11a^2b^2gz^2 + 22a^2gn^2z^2}</math></p>