Rechnen mit Termen

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1. Vereinfache so weit wie möglich

a) $-3a^3+6a^3-6a^2-3a^2+4a-5a = 3a^3-9a^2-a$

b) $-7xy+3x-7y-2xy-7x+y = -9xy-4x-6y$

c) $10ab:(-4a) - (-2a)\cdot(-3) + 4\cdot 2b + ab:(-2b) = -2{,}5b-6a+8b+(-0{,}5a) =$

$= -5{,}5b-6{,}5a$

d) $(-2a^2)^3 + 2a^2\cdot(-2a^4) - (-2a)^2\cdot(2a)^4 + 2a^6 - 2a^3:(-a)^3 =$

$= -8a^6 + (-4a^6) - 4a^2\cdot 16a^4 + 2a^6 - 2a^3:(-a^3) =$

$= -8a^6 - 4a^6 - 64a^6 + 2a^6 - (-2) = -74a^6+2$

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2. Vereinfache so weit wiemöglich

a) $(a^2-2ab) - (4a^2+5ab) = a^2-2ab-4a^2-5ab = -3a^2-7ab$

b) $-(3x+2y) - \left[(x-3y) - (5x-2y)\right] = -3x-2y - \left[x-3y-5x+2y\right] =$

$= -3x-2y - \left[-4x-y\right] = = -3x-2y+4x+y = x-y$

c) $(-2x)^3 - (4x^3+4) + (6x^3-2) = -8x^3-4x^3-4+6x^3-2 = -6x^3-6$

d) $(-6x^2y^3):(-4xy^2) - \left[(6xy-3x) - (8xy+5x)\right] = 1{,}5xy - \left[6xy-3x-8xy-5x\right] =$

$= 1{,}5xy - \left[-2xy-8x\right] = 1{,}5xy+2xy+8x = 3{,}5xy+8x$

e) $\left(-\frac{1}{2}a+\frac{1}{4}b\right) - \left(-\frac{1}{4}a+\frac{1}{8}b\right) = -\frac{1}{2}a+\frac{1}{4}b+\frac{1}{4}a-\frac{1}{8}b = -\frac{1}{4}a+\frac{1}{8}b$

f) $0{,}5x\cdot(-0{,}2) - (-0{,}1x + y:2)+0{,}2y = -0{,}1x-(-0{,}1x+0{,}5y)+0{,}2y =$

$= -0{,}1x+0{,}1x-0{,}5y+0{,}2y = -0{,}3y$

g) $\left[(-2x)^4-(-3y)^3\right] + \left[2x\cdot(-3x^3) - 3y^3\right] = \left[16x^4-(-27y^3)\right]+\left[-6x^4-3y^3\right] =$

$= \left[16x^4+27y^3\right]+\left[-6x^4-3y^3\right] = 16x^4+27y^3-6x^3-3y^3 = 10x^4+24y^3$

h) $\left(-\frac{a}{4}-\frac{b}{2}\right)-\left(\frac{a}{2}+\frac{b}{3}\right)=-\frac{1}{4}a-\frac{1}{2}b-\frac{1}{2}a-\frac{1}{3}b=-\frac{1}{4}a-\frac{1}{2}a-\frac{1}{2}b-\frac{1}{3}b=$

$=-\left(\frac{1}{4}a+\frac{1}{2}a\right)-\left(\frac{1}{2}b+\frac{1}{3}b\right)=-\frac{3}{4}a-\frac{5}{6}b$
