

Aufgabenblatt 2 'Binomische Formeln'

1. a) $(u + v)^2 = \underline{(u+v) \cdot (u+v) = u^2 + uv + uv + v^2 = u^2 + 2uv + v^2}$

b) $(2x + 7y)^2 = \underline{(2x+7y) \cdot (2x+7y) = 4x^2 + 14xy + 14xy + 49y^2 = 4x^2 + 28xy + 49y^2}$

c) $(s - t)^2 = \underline{(s-t) \cdot (s-t) = s^2 - st - st + t^2 = s^2 - 2st + t^2}$

d) $(3a - 5b)^2 = \underline{(3a-5b) \cdot (3a-5b) = 9a^2 - 15ab - 15ab + 25b^2 = 9a^2 - 30ab + 25b^2}$

2. a) $(2a^2 + 3b)^2 = \underline{(2a^2+3b) \cdot (2a^2+3b) = 4a^4 + 6a^2b + 6a^2b + 9b^2 = 4a^4 + 12a^2b + 9b^2}$

b) $(4x^3 + 3y^4)^2 = \underline{(4x^3+3y^4) \cdot (4x^3+3y^4) = 16x^6 + 12x^3y^4 + 12x^3y^4 + 9y^8 = 16x^6 + 24x^3y^4 + 9y^8}$

c) $(5r^3 - 2s^5)^2 = \underline{(5r^3-2s^5) \cdot (5r^3-2s^5) = 25r^6 - 10r^3s^5 - 10r^3s^5 + 4s^{10} = 25r^6 - 20r^3s^5 + 4s^{10}}$

d) $(3a^2 - 2b^3)^2 = \underline{(3a^2-2b^3) \cdot (3a^2-2b^3) = 9a^4 - 6a^2b^3 - 6a^2b^3 + 4b^6 = 9a^4 - 12a^2b^3 + 4b^6}$

e) $(0,5x + 0,7y)^2 = \underline{(0,5x+0,7y) \cdot (0,5x+0,7y) = 0,25x^2 + 0,35xy + 0,35xy + 0,49y^2 = 0,25x^2 + 0,7xy + 0,49y^2}$

f) $(1,2a - 1,5b)^2 = \underline{(1,2a-1,5b) \cdot (1,2a-1,5b) = 1,44a^2 - 1,8ab - 1,8ab + 2,25b^2 = 1,44a^2 - 3,6ab + 2,25b^2}$

3. a) $(a + 5)(a - 5) = \underline{a^2 - 5a + 5a - 25 = a^2 - 25}$

b) $(b + 2c)(b - 2c) = \underline{b^2 - 2bc + 2bc - 4c^2 = b^2 - 4c^2}$

c) $(2x^2 + 5)(2x^2 - 5) = \underline{4x^4 - 10x^2 + 10x^2 - 25 = 4x^4 - 25}$

d) $(a^3 + 7b^4)(a^3 - 7b^4) = \underline{a^6 - 7a^3b^4 + 7a^3b^4 - 49b^8 = a^6 - 49b^8}$

e) $(0,9x^2 + 1,1y)(0,9x^2 - 1,1y) = \underline{0,81x^4 - 0,99x^2y + 0,99x^2y - 1,21y^2 = 0,81x^4 - 1,21y^2}$