

Lösungen zum Aufgabenblatt für den 13.05.2005

- a) $45abcxy - 54a^2b^2c^2x^2y^2 + 99a^3b^3c^3 = 9abc(5xy - 6abcx^2y^2 + 11a^2b^2c^2)$
- b) $75(ab)^3 - 5^3a^2b^2 + 25^2a^3b^4 = 25a^2b^2(3ab - 5 + 25ab^2)$
- c) $9x^2 - 30x + 25 = (3x - 5)^2$
- d) $0,001a^3b^4c^2 - \frac{1}{100}a^2b^3c^7 - 0,0001(abc)^5 = \frac{1}{100}a^2b^3c^2(0,1ab - c^5 - 0,01a^3b^2c^3)$
- e) $x^4y^2 - 2x^2yz^2 + z^4 = (x^2y - z^2)^2$
- f) $(a - 3b)x + (a - 3b)y = (a - 3b)(x + y)$
- g) $a^4 - 81b^4 = (a^2 - 9b^2)(a^2 + 9b^2)$
- h) $3,24p^6 + 57,6p^3q^2 + 256q^4 = (1,8p^3 + 16q^2)^2$
- i) $a^2 + 3ab + a + 3b = a(a + 3b) + 1 \cdot (a + 3b) = (a + 3b)(a + 1)$
- j) $x^2 - x + 2x - 2 = x(x - 1) + 2(x - 1) = (x - 1)(x + 2)$
- k) $2x^2 - 0,08 = 2(x^2 - 0,04) = 2(x - 0,2)(x + 0,2)$
- l) $\frac{1}{100}x^2y^2 - 0,26axy + 1,69a^2 = (0,1xy - 1,3a)^2$
- m) $18x^2 - 30x + 50 = 2(9x^2 - 15x + 25)$ Die Klammer ist keine binomische Formel, obwohl vorne und hinten Quadrate sind, da der mittlere Term nicht stimmt
- n) $ab - a - b + 1 = a(b - 1) - 1(b - 1) = (b - 1)(a - 1)$
- o) $\frac{1}{8}a^2 + \frac{1}{2}ab + \frac{1}{2}b^2 = \frac{1}{2}(\frac{1}{4}a^2 + ab + b^2) = \frac{1}{2}(\frac{1}{2}a + b)^2$
- p) $68a^2 + 204ab^2 + 153b^4 = 17(4a^2 + 12ab^2 + 9b^4) = 17(2a + 3b^2)^2$
- q) $1 + x^2y^2 - x^2 - y^2 = 1 - y^2 - x^2 + x^2y^2 = 1(1 - y^2) - x^2(1 - y^2) = (1 - y^2)(1 - x^2) = (1 - y)(1 + y)(1 - x)(1 + x)$
- r) $0,01x^2y^2 - 1,69a^2 = (0,1xy - 1,3a)(0,1xy + 1,3a)$
- s) $4x^5 - 6x^4 + 8x^3 = 2x^3(2x^2 - 3x + 4)$
- t) $(a + b)^2 + 2a(a + b) - 2b(a + b) = (a + b)(a + b + 2a - 2b) = (a + b)(3a - b)$
- u) $0,04a^6 - 0,4a^3b^2 + b^4 = (0,2a^3 - b^2)^2$
- v) $(x - 2y)a - x + 2y = (x - 2y)a - 1(x - 2y) = (x - 2y)(a - 1)$