

Uitwerkingen diagnostische toets hoofdstuk 4

1. a. $y^2 + 12y + 11 = (y + 1)(y + 11)$
b. $t^4 - 10t^2 + 9 = (t^2 - 1)(t^2 - 9) = (t - 1)(t + 1)(t - 3)(t + 3)$
c. $4p^5 - p^3 = p^3(4p^2 - 1) = p^3(2p - 1)(2p + 1)$
d. $4x^2 - 16 = 4(x^2 - 4) = 4(x - 2)(x + 2)$
e. $x^4 + 8x^3 + 16x^2 - (x^2 + 8x + 16) = x^2(x^2 + 8x + 16) - 1 \cdot (x^2 + 8x + 16) =$
 $= (x^2 - 1)(x^2 + 8x + 16) = (x - 1)(x + 1)(x + 4)^2$
f. $4a^2 - 4ab + b^2 = (2a)^2 - 2 \cdot 2a \cdot b + b^2 = (2a - b)^2$
2. a. $2a(3a + 4a) = 2a \cdot 7a = 14a^2$
b. $(3t - 4t)5t = -t \cdot 5t = -5t^2$
c. $-2(a - 3b + c) = -2a + 6b - 2c$
d. $a - 2c - (a + 6b - c\sqrt{3}) = a - 2c - a - 6b + c\sqrt{3} = -6b - 2c + \sqrt{3} \cdot c = -6b - (2 - \sqrt{3})c$
e. $(3a + 4b)(1 - a) = 3a(1 - a) + 4b(1 - a) = 3a - 3a^2 + 4b - 4ab = -3a^2 + 3a - 4ab + 4b$
f. $(3 - 2p^2)(p^2 - 4) = 3(p^2 - 4) - 2p^2(p^2 - 4) = 3p^2 - 12 - 2p^4 + 8p^2 = -2p^4 + 11p^2 - 12$
3. a. $x^3 - 9x^2 = x^2(x - 9)$
b. $t^3 - 9t = t(t^2 - 9) = t(t - 3)(t + 3)$
c. $a^2 - \frac{1}{4} = (a + \frac{1}{2})(a - \frac{1}{2})$
d. $x^2 + 7x + 12 = (x + 3)(x + 4)$
4. a. $(3x - p)^2 = (3x)^2 - 2 \cdot 3x \cdot p + p^2 = 9x^2 - 6xp + p^2$
b. $(a + 2\sqrt{b})^2 = a^2 + 2 \cdot a \cdot 2\sqrt{b} + (2\sqrt{b})^2 = a^2 + 4a\sqrt{b} + 4b$
c. $(s - 3)(s + 4) = s(s + 4) - 3(s + 4) = s^2 + 4s - 3s - 12 = s^2 + s - 12$
d. $x(3x - 1) + 2(x^2 - 3) = 3x^2 - x + 2x^2 - 6 = 5x^2 - x - 6$