

## Les 1: Opgave 1: Vereenvoudig - Uitwerkingen

1.  $x + y - y + 3 - 7 = x - y - 7 + 5 + 3 = x - y + 1$
2.  $a + 9 + b - 4 = a + b - 4 + 9 = a + b + 5$
3.  $10 + b - 2 + a + 3 + 4b = a + b + 4b - 2 + 3 + 10 = a + 5b + 11$
4.  $21 - (8 + y) = 21 - 1 \cdot (8 + y) = 21 - 8 - y = 13 - y$
5.  $9 + a - 3(a + 2) = 9 + a - 3 \cdot (a + 2) = 9 + a - 3a - 6 = -3a + a - 6 + 9 = -2a + 3 = 3 - 2a$
6.  $a + 23 - (3 + 2a) - 3(8 - 2a) = a + 23 - 1 \cdot (3 + 2a) - 3 \cdot (8 - 2a) = a + 23 - 3 - 2a - 24 + 6a = -2a + a + 6a - 24 - 3 + 23 = 5a - 4$   
 $34 - (a - 5) - 2(5a + 12) + 3(9 - 2a) = 34 - 1 \cdot (a - 5) - 2 \cdot (5a + 12) + 3 \cdot (9 - 2a) = 34 - a + 5 - 10a - 24 + 27 - 6a = -24 + 5 + 27 + 34 - 10a - 6a - a = 42 - 17a$
7.  $4b \cdot 3ac \cdot 5a = 4 \cdot b \cdot 3 \cdot a \cdot c \cdot 5 \cdot a = 3 \cdot 4 \cdot 5 \cdot a \cdot a \cdot b \cdot c = 60a^2bc$
8.  $xyz^2(x - 3y) = xyz^2 \cdot (x - 3y) = (x \cdot y \cdot z^2 \cdot x) - (x \cdot y \cdot z^2 \cdot 3 \cdot y) = x^2yz^2 - 3xy^2z^2$
9.  $(a^2 - 3ab + 2b^2)(-5ab) = -(5ab \cdot a^2) - (5ab \cdot 3ab) - (5ab \cdot 2b^2) = -(5 \cdot a \cdot a^2 \cdot b) - (5 \cdot 3 \cdot a \cdot a \cdot b \cdot b) - (5 \cdot 2 \cdot a \cdot b \cdot b \cdot b) = -5a^3b - 15a^2b^2 - 10ab^3$
10.  $(a + 2b)(2b - a) = (a \cdot 2b) + (a \cdot -a) + (2 \cdot b \cdot 2 \cdot b) + (2b \cdot -a) = 2ab - a^2 + 4b^2 - 2ab = 4b^2 - a^2 + 2ab - 2ab = 4b^2 - a^2$
11.  $(2ab - 3cd)(4ab + 3cd) = (2ab \cdot 4ab) + (2ab \cdot 3cd) - (3cd \cdot 4ab) - (3cd \cdot 3cd) = 8a^2b^2 + 6abcd - 12abcd - 9c^2d^2 = 8a^2b^2 - 6abcd - 9c^2d^2$
12.  $(2x - 1)(3x + 5) - (2x + 1)(x - 3) = ((2x \cdot 3x) + (2x \cdot 5) - (1 \cdot 3x) - (1 \cdot 5)) - ((2x \cdot x) + (2x \cdot -3) + (1 \cdot x) + (1 \cdot -3)) = (6x^2 + 10x - 3x - 5) - (2x^2 - 6x + x - 3) = (6x^2 + 10x - 3x - 5) - 1 \cdot (2x^2 - 6x + x - 3) = 6x^2 + 10x - 3x - 5 - 2x^2 + 6x - x + 3 = 6x^2 - 2x^2 + 10x + 6x - 3x - x - 5 + 3 = 4x^2 + 12x - 2$

14.  $(a - 3b)(a + 3b) = (a * a) + (a * 3b) - (3b * a) - (3b * 3b) =$   
 $a^2 + 3ab - 3ab - 9b^2 = a^2 - 9b^2$

15.  $(4x - 7)^2 = (4x - 7)(4x - 7) = (4x * 4x) + (4x * -7) - (7 * 4x) - (7 * -7) =$   
 $16x^2 - 28x - 28x + 49 = 16x^2 - 56x + 49$