Introduction au calcul littéral
Les exercices résolus

Exercice 3.4

$3x + x = 4x$
$3x - 2x = x$
$9x - x = 8x$
$x - 5x = -4x$
$-7x + 10x = 3x$
$-9x + 35x = 26x$
$-3x - 9x = -12x$
$10x - 17x = -7x$
$x - 15x = -14x$
$-5x + 4x = -x$

$3x + 5x = 8x$
$7x - 5x = 2x$
$3x - 7x = -4x$
$x - 2x = -x$
$-x + 4x = 3x$
$-2x - 12x = -14x$
$-x - 8x = -9x$
$8x - 5x = 3x$
$-13x + 10x = -3x$
$- 2x - x = -3x$

Exercice 3.5

$6x^2 + 2x + x - 3 = 6x^2 + 3x - 3$
$2x^2 + x + 3x + 8 = 2x^2 + 4x + 8$
$5x^2 + 4x - 3x + 9 = 5x^2 + x + 9$
$x^2 - 5x + x + 5 = x^2 - 4x + 5$
$8x^2 - 12x + 3x - 3 = 8x^2 - 9x - 3$
$x^2 + 4x + 6x + 1 = x^2 + 10x + 1$
$x^2 + 2x - x - 3 = x^2 + x - 3$
$8x^2 + 8x - 3x + 10 = 8x^2 + 5x + 10$
$5x^2 - 4x + 2x + 1 = 5x^2 - 2x + 1$
$10x^2 - 5x - 10x + 25 = 10x^2 - 15x + 25$

Exercice 3.6

Développons les expressions sachant que $(a + b)(c + d) = ac + bc + ad + bd = ac + ad + bc + bd$.

$(x + 2) \times (x + 5) = x \times x + 2 \times x + x \times 5 + 2 \times 5 = x^2 + 2x + 5x + 10 = x^2 + 7x + 10$
$(x + (-2)) \times (x + 1) = x \times x + (-2) \times x + x \times 1 + (-2) \times 1 = x^2 - 2x + x - 2 = x^2 - x - 2$
$(x + 5) \times (x + (-3)) = x \times x + 5 \times x + x \times (-3) + 5 \times (-3) = x^2 + 5x - 3x - 15 = x^2 + 2x - 15$
$(x + (-3)) \times (x + (-1)) = x \times x + (-3) \times x + x \times (-1) + (-3) \times (-1) = x^2 - 3x - x + 3 = x^2 - 4x + 3$

$(2x + 2) \times (3x + 5) = 2x \times 3x + 2 \times 3x + 2x \times 5 + 2 \times 5 = 6x^2 + 6x + 10x + 10 = 6x^2 + 16x + 10$
$(4x + (-2)) \times (2x + 1) = 4x \times 2x + (-2) \times 2x + 4x \times 1 + (-2) \times 1 = 8x^2 - 4x + 4x - 2 = 8x^2 - 2$
$(3x + 5) \times (7x + (-3)) = 3x \times 7x + 5 \times 7x + 3x \times (-3) + 5 \times (-3) = 21x^2 + 35x - 9x - 15 = 21x^2 + 26x - 15$
$(3x + (-3)) \times (3x + (-1)) = 3x \times 3x + (-3) \times 3x + 3x \times (-1) + (-3) \times (-1) = 9x^2 - 9x - 3x + 3 = 9x^2 - 12x + 3$

$(x + (-1)) \times (x + 3) = x^2 + 2x - 3$
$(x + 2) \times (x + (-1)) = x^2 + x - 2$
$(x + (-1)) \times (x + (-2)) = x^2 - 3x + 2$
$(x + (-4)) \times (x + (-2)) = x^2 - 6x + 8$

$(3x + (-1)) \times (2x + 3) = 6x^2 + 7x - 3$
$(5x + 2) \times (3x + (-1)) = 15x^2 + x - 2$
$(3x + (-1)) \times (3x + (-2)) = 9x^2 - 9x + 2$
$(3x + (-4)) \times (3x + (-2)) = 9x^2 - 18x + 8$

Exercice 3.7

Développons les expressions :

$(x - 2)(3x - 5) = 3x^2 - 11x + 10$

$(2x - 1)(3x - 1) = 6x^2 - 5x + 1$

$(x - 3)(x - 5) = x^2 - 8x + 15$
$(x - 2)(3x + 5) = 3x^2 - x - 10$
$(3x - 2)(x + 5) = 3x^2 + 13x - 10$
$(2x + 3)(5x - 8) = 10x^2 - x - 24$
$(-x + 2)(4x - 3) = -4x^2 + 11x - 14$
$(-2x - 7)(7x + 2) = -14x^2 - 53x - 14$
$(-x + 2)(-x - 3) = x^2 + x - 6$
$(-4x - 7)(-2x + 2) = 8x^2 + 6x - 14$

$(4x - 5)(2x - 1) = 8x^2 - 14x + 5$
$(7x + 2)(3x - 2) = 21x^2 - 8x - 4$
$(x + 2)(4x - 3) = 4x^2 + 5x - 6$
$(4x - 7)(7x + 2) = 28x^2 - 41x - 14$
$(-x + 3)(5x - 8) = -5x^2 + 23x - 24$
$(-3x + 2)(3x - 2) = -9x^2 + 12x - 4$
$(2x + 3)(-3x - 1) = -6x^2 - 11x - 3$
$(7x + 2)(-4x - 1) = -28x^2 - 15x - 2$