

Chap 2 - Remédiation - Gestion des signes - Entraînement

Correction 1

- a. $(3x + 2)(5x + 4) = 3x \times 5x + 3x \times 4 + 2 \times 5x + 2 \times 4$
 $= 15x^2 + 12x + 10x + 8 = 15x^2 + 22x + 8$
- b. $(x - 2)(2x + 1) = x \times 2x + x \times 1 + (-2) \times 2x + (-2) \times 1$
 $= 2x^2 + x - 4x - 2 = 2x^2 - 3x - 2$
- c. $(-2x + 1)(x - 1)$
 $= (-2x) \times x + (-2x) \times (-1) + 1 \times x + 1 \times (-1)$
 $= -2x^2 + 2x + x - 1 = -2x^2 + 3x - 1$
- d. $(5x - 2)(-3 - x)$
 $= 5x \times (-3) + 5x \times (-x) + (-2) \times (-3) + (-2) \times (-x)$
 $= -15x - 5x^2 + 6 + 2x = -5x^2 - 13x + 6$

Correction 2

- a. $(3x + 1)(2x + 4) = 3x \times 2x + 3x \times 4 + 1 \times 2x + 1 \times 4$
 $= 6x^2 + 12x + 2x + 4 = 6x^2 + 14x + 4$
- b. $(2x - 1)(-3x + 1)$
 $= 2x \times (-3x) + 2x \times 1 + (-1) \times (-3x) + (-1) \times 1$
 $= -6x^2 + 2x + 3x - 1 = -6x^2 + 5x - 1$
- c. $(2 - x)(x - 2) = 2 \times x + 2 \times (-2) + (-x) \times x + (-x) \times (-2)$
 $= 2x - 4 - x^2 + 2x = -x^2 + 4x - 4$
- d. Cette expression est le produit de trois facteurs ; il existe donc plusieurs manières (*mais toutes équivalentes*) d'effectuer le développement de l'expression :
- Première méthode :
 $2(5x - 2)(x + 1)$
 $= 2(5x \times x + 5x \times 1 + (-2) \times x + (-2) \times 1)$
 $= 2(5x^2 + 5x - 2x - 2) = 10x^2 + 6x - 4$
 - Deuxième méthode méthode :
 $2(5x - 2)(x + 1) = (10x - 4)(x + 1)$
 $= 10x \times x + 10x \times 1 + (-4) \times x + (-4) \times 1$
 $= 10x^2 + 10x - 4x - 4 = 10x^2 + 6x - 4$
- e. $-(x + 1)(x + 1) = -(x \times x + x \times 1 + 1 \times x + 1)$
 $= -(x^2 + 2x + 1) = -x^2 - 2x - 1$
- f. $(-2x - 1)(-7 - 4x)$
 $= (-2x) \times (-7) + (-2x) \times (-4x) + (-1) \times (-7) + (-1) \times (-4x)$
 $= 14x + 8x^2 + 7 + 4x = 8x^2 + 18x + 7$

Correction 3

- a. $2(x - 2) + 3(x + 2) = 2x - 4 + 3x + 6 = 5x + 2$
- b. $4(1 - x) + (3x + 1) = 4 - 4x + 3x + 1 = -x + 5$
- c. $3(2x - 5) - 2(x - 1) = 6x - 15 - 2x + 2 = 4x - 13$
- d. $3(3x - 2) - (2 - x) = 9x - 6 - 2 + x = 10x - 8$
- e. $-4(x - 2) + 3(2x + 1) = -4x + 8 + 6x + 3 = 2x + 11$
- f. $3(2x - 2) - 3(2 - 3x) = 6x - 6 - 6 + 9x = 15x - 12$

Correction 4

- a. $3(x - 1) + (x + 1)(2x + 1)$
 $= 3x - 3 + (2x^2 + x + 2x + 1) = 2x^2 + 6x - 2$
- b. $(x + 2)(x + 1) + (x + 3)(2x - 1)$
 $= (x^2 + x + 2x + 2) + (2x^2 - x + 6x - 3)$
 $= (x^2 + 3x + 2) + (2x^2 + 5x - 3) = 3x^2 + 8x - 1$
- c. $5(x - 1)(x + 4) - 3(x + 2)$
 $= 5(x^2 + 4x - x - 4) - 3x - 6$
 $= 5(x^2 + 3x - 4) - 3x - 6$
 $= 5x^2 + 15x - 20 - 3x - 6 = 5x^2 + 12x - 26$
- d. $-(2x - 3) + x(x - 1) = -2x + 3 + x^2 - x$
 $= x^2 - 3x + 3$
- e. $(2 - x)(1 + x) - 3(5 - 2x)$
 $= (2 + 2x - x - x^2) - 15 + 6x$
 $= (-x^2 + x + 2) - 15 + 6x = -x^2 + 7x - 13$
- f. $3x(x - 1) - (x - 2)(2x - 4)$
 $= 3x^2 - 3x - (2x^2 - 4x - 4x + 8)$
 $= 3x^2 - 3x - (2x^2 - 8x + 8)$
 $= 3x^2 - 3x - 2x^2 + 8x - 8 = x^2 + 5x - 8$

Correction 5

- a. $3(x + 2) + 2(2x - 1) = 3x + 3 \times 2 + 2 \times 2x - 2 \times 1$
 $= 3x + 6 + 4x - 2 = 7x + 4$
- b. $2(-x - 2)(2x - 6)$
 $= 2[-x \times 2x - x \times (-6) - 2 \times 2x - 2 \times (-6)]$
 $= 2(-2x^2 + 6x - 4x + 12)$
 $= 2(-2x^2 + 2x + 12) = -4x^2 + 4x + 24$
- c. $3x(2x - 4) - 5(4 - x) = 3x \times 2x - 3x \times 4 - (5 \times 4 - 5 \times x)$
 $= 6x^2 - 12x - (20 - 5x) = 6x^2 - 12x - 20 + 5x$
 $= 6x^2 - 7x - 20$
- d. $(2x - 5)(x + 1) = 2x \times x + 2x \times 1 - 5 \times x - 5 \times 1$
 $= 2x^2 + 2x - 5x - 5 = 2x^2 - 3x - 5$
- e. $-(x + 2) + 3(2x^2 + 1) = -x - 2 + 3 \times 2x^2 + 3 \times 1$
 $= -x - 2 + 6x^2 + 3 = 6x^2 - x + 1$
- f. $-(x - 3)(7 - 2x) = (-x + 3)(7 - 2x)$
 $= -7x + 2x^2 + 21 - 6x = 2x^2 - 13x + 21$