

# Correction Calcul littéral

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**Exercice 1 :** Réduire les expressions suivantes :

$$A = 9x - 3x = 6x$$

$$B = 5 + 8x - 3x = 5x + 5$$

$$C = 2x^2 - 3x^2 - 4x^2 = -5x^2$$

$$D = 5x^2 - 2x + 3x - 1 = 5x^2 + x - 1$$

$$E = 9x - 3x^2 + 2x - 4x^2 + 5x = -7x^2 + 16x$$

**Exercice 2 :**

$$B = 9x^2 - 2x + 5 \quad \text{Calculer B pour } x = -1$$

$$B = 9 \times (-1)^2 - 2 \times (-1) + 5 = 9 \times 1 + 2 + 5 = 9 + 2 + 5 = 16$$

$$C = 4x^2 - 5x + 3 \quad \text{Calculer C pour } x = 3$$

$$C = 4 \times 3^2 - 5 \times 3 + 3 = 4 \times 9 - 15 + 3 = 36 - 15 + 3 = 21 + 3 = 24$$

**Exercice 3 :** Développer

$$A = 6(3x + 1) = 6 \times 3x + 6 \times 1 = 18x + 6$$

$$B = -5(2x + 7) = -5 \times 2x + (-5) \times 7 = -10x - 35$$

$$C = 8(2x - 3) = 8 \times 2x + 8 \times (-3) = 16x - 24$$

$$D = -4(-5x + 1) = -4 \times (-5x) + (-4) \times 1 = 20x - 4$$

**Exercice 4 :** Développer :

$$A = (3x + 5)(4x + 2) = 3x \times 4x + 3x \times 2 + 5 \times 4x + 5 \times 2 = 12x^2 + 6x + 20x + 10 = 12x^2 + 26x + 10$$

$$B = (6x - 7)(5x + 3) = 6x \times 5x + 6x \times 3 - 7 \times 5x - 7 \times 3 = 30x^2 + 18x - 35x - 21 = 30x^2 - 17x - 21$$

$$C = (4x + 2)(9x - 3) = 4x \times 9x + 4x \times (-3) + 2 \times 9x + 2 \times (-3) = 36x^2 - 12x + 18x - 6 = 36x^2 + 6x - 6$$

$$D = (7x - 2)(-3x - 5) = 7x \times (-3x) + 7x \times (-5) - 2 \times (-3x) - 2 \times (-5) = -21x^2 - 35x + 6x + 10 \\ = -21x^2 - 29x + 10$$

**Exercice 5 :** Réduire les expressions suivantes :

$$A = 4 + (7x - 2) = 4 + 7x - 2 = 7x + 2$$

$$B = 5 + (-3x - 4) = 5 - 3x - 4 = 1 - 3x$$

**Exercice 6 :** Réduire les expressions suivantes :

$$A = 3 - (2x + 7) = 3 - 2x - 7 = -4 - 2x$$

$$B = 4 - (-5x + 1) = 4 + 5x - 1 = 3 + 5x$$

$$C = 9 - (-4x - 4) = 9 + 4x + 4 = 13 + 4x$$

**Exercice 7 :** Factoriser les expressions suivantes :

$$A = 49x + 21 = 7 \times 7x + 7 \times 3 = 7(7x + 3)$$

$$B = 2x - 4 = 2 \times x - 2 \times 2 = 2(x - 2)$$

$$C = 9x - 12 = 3 \times 3x - 3 \times 4 = 3(3x - 4)$$

**Exercice 8 :** Factoriser les expressions suivantes :

$$A = (6x + 1)(2x + 3) + (6x + 1)(4x - 2) = (6x + 1)[(2x + 3) + (4x - 2)] = (6x + 1)(2x + 3 + 4x - 2) \\ = (6x + 1)(6x + 1)$$

$$B = (7x + 1)(9x - 7) + (9x - 7)(4x + 3) = (9x - 7)[(7x + 1) + (4x + 3)] = (9x - 7)(7x + 1 + 4x + 3) \\ = (9x - 7)(11x + 4)$$

$$\begin{aligned} C &= (5x + 6)(3x - 2) - (3x - 2)(6x + 7) = (3x - 2)[(5x + 6) - (6x + 7)] = (3x - 2)(5x + 6 - 6x - 7) \\ &= (3x - 2)(-x - 1) \end{aligned}$$

$$\begin{aligned} D &= (10x - 9)^2 - (10x - 9)(-4x + 2) = (10x - 9)(10x - 9) - (10x - 9)(-4x + 2) \\ &= (10x - 9)[(10x - 9) - (-4x + 2)] = (10x - 9)(10x - 9 + 4x - 2) \\ &= (10x - 9)(14x - 11) \end{aligned}$$