

Correction Plan de Travail : Révisions calcul littéral

▷ Exercice 1:

$$A = 2x^2 - 4 \text{ est une somme}$$

$$B = x(x-1) \text{ est un produit}$$

$$C = (2x+1)(x-3) \text{ est un produit}$$

$$D = x - 3x(x-1) \text{ est un produit}$$

$$E = (x-1)(x+2) + 3x(x+1) \text{ est une somme}$$

$$F = 2(x-5)(x+1) \text{ est un produit}$$

▷ Exercice 2:

$$A = 3a^2 + 2a - 5ab + 4ab - a^2 + 3b^2 = 2a^2 + 2a - ab + 3b^2$$

$$B = 4(1-3x) = 4 - 12x$$

$$C = 5(2-3x) - 5(x-1) = -20x + 15$$

$$D = 1 - (2-3x) = 3x - 1$$

▷ Exercice 3:

$$A = (5x+7)(2x+4) = 10x^2 + 34x + 28$$

$$B = (2x-1)(3x+5) = 6x^2 + 7x - 5$$

$$C = (1-2x)(4x-3) = -8x^2 + 10x - 3$$

▷ Exercice 4:

$$A = 9x^2 + 30x + 25$$

$$B = 4x^2 - 24x + 36$$

$$C = 16x^2 - 49$$

$$D = 9x^2 - 4$$

▷ Exercice 5:

$$A = (1-2x)(4x+5) + (2-5x)(5-3x)$$

$$= -8x^2 - 6x + 5 + 15x^2 - 31x + 10$$

$$= 7x^2 - 37x + 15$$

$$B = (1-3x)(4x-1) + (3x+5)(2-8x)$$

$$= -12x^2 + 7x - 1 - 24x^2 - 34x + 10$$

$$= -36x^2 - 27x + 9$$

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

$$= 25x^2 - 20x + 4 + 9x^2 - 6x + 1$$

$$= 34x^2 - 26x + 5$$

$$D = (7-9x)^2 - (4x+5)(4x-5)$$

$$= 49 - 126x + 81x^2 - 16x^2 + 25$$

$$= 65x^2 - 126x + 74$$

$$E = 2 - 6(2x-3)^2$$

$$= 2 - 6(4x^2 - 12x + 9)$$

$$= 2 - 24x^2 + 72x - 54$$

$$= -24x^2 + 72x - 52$$

▷ Exercice 6:

$$A = 14x + 2 = 2(7x + 1)$$

$$B = 3x^2 - 4x = x(3x - 4)$$

$$C = 8x^3 - 4x^2 + 12x = 4x(2x^2 - x + 3)$$

$$D = 7a^2b + 3ab^2 - 7ab + a^2b^2 = ab(7a + 3b - 7 + ab).$$

▷ Exercice 7:

$$\begin{aligned}
 A &= (2x+3)(x+1) + (x+1)(4-x) = (x+1)((2x+3) + (4-x)) \\
 &= (x+1)(x+7) \\
 B &= (3x-1)(x+5) - (x+5)(3x+2) = (x+5)((3x-1) - (3x+2)) \\
 &= (x+5)(3x-1-3x-2) \\
 &= -3(x+5) \\
 C &= (1-x)^2 - (1-x)(x-1) = (1-x)((1-x) - (x-1)) \\
 &= (1-x)(1-x-x+1) \\
 &= (1-x)(2-2x) \\
 D &= 3(2-x)(x+5) - 5(3x+7)(2-x) = (2-x)(3(x+5) - 5(3x+7)) \\
 &= (2-x)(3x+15-15x-35) \\
 &= (2-x)(-12x-20)
 \end{aligned}$$

▷ Exercice 8:

$$\begin{aligned}
 A &= x^2 + 4x + 4 = (x+2)^2 \\
 B &= 4x^2 - 12x + 9 = (2x-3)^2 \\
 C &= x^2 - 25 = (x-5)(x+5) \\
 D &= 4x^2 - 36 = (2x-6)(2x+6) \\
 E &= (2x-7)^2 - 49 = (2x-7)^2 - 7^2 \\
 &= (2x-7-7)(2x-7+7) \\
 &= 2x(2x-14) \\
 F &= 1 - (3-x)^2 = 1^2 - (3-x)^2 \\
 &= (1-(3-x))(1+(3-x)) \\
 &= (1-3+x)(1+3-x) \\
 &= (-2+x)(4-x)
 \end{aligned}$$

▷ Exercice 9:

$$\begin{aligned}
 A &= (4-x)^3 - (4-x)^2 = (4-x^2)((4-x) - 1) \\
 &= (4-x)^2(3-x) \\
 B &= (1-x)(2x-3) + (1-x) = (1-x)((2x-3) + 1) \\
 &= (1-x)(2x-2)
 \end{aligned}$$

▷ Exercice 10: Factoriser si possible les expressions suivantes :

$$\begin{aligned}
 A &= (4-2x)(x+3) + (2-x)(x-3) = 2(2-x)(x+3) + (2-x)(x-3) \\
 &= (2-x)(2(x+3) + (x-3)) \\
 &= (2-x)(2x+6+x-3) \\
 &= (2-x)(3x+3) \\
 B &= 16 - x^2 + (4-x)(3x+2) = (4-x)(4+x) + (4-x)(3x+2) \\
 &= (4-x)((4+x) + (3x+2)) \\
 &= (4-x)(4x+6)
 \end{aligned}$$