

Corrigés Savoir Cf. 4

Corrigé Exercice 9bis9

$$\begin{aligned}
 C_1 &= 9x^2 - (x+2)^2 \\
 C_1 &= (3x + (x+2))(3x - (x+2)) \\
 C_1 &= (3x + x + 2)(3x - x - 2) \\
 C_1 &= (4x + 2)(2x - 2) = 4(2x + 1)(x - 1) \\
 \\
 C_2 &= (7 - x)^2 - 1 \\
 C_2 &= (7 - x + 1)(7 - x - 1) = (8 - x)(6 - x) \\
 \\
 C_3 &= 64 - (2x - 1)^2 \\
 C_3 &= (8 + (2x - 1))(8 - (2x - 1)) \\
 C_3 &= (8 + 2x - 1)(8 - 2x + 1) \\
 C_3 &= (7 + 2x)(9 - 2x) \\
 \\
 C_4 &= (2x - 3)^2 - (3 - 4x)^2 \\
 C_4 &= ((2x - 3) + (3 - 4x))((2x - 3) - (3 - 4x)) \\
 C_4 &= (2x - 3 + 3 - 4x)(2x - 3 - 3 + 4x) \\
 C_4 &= -2x(6x - 6) = -12x(x - 1) \\
 \\
 C_5 &= (x + 1)^2 - (2 + 3x)^2 \\
 C_5 &= ((x + 1) + (2 + 3x))((x + 1) - (2 + 3x)) \\
 C_5 &= (x + 1 + 2 + 3x)(x + 1 - 2 - 3x) \\
 C_5 &= (4x + 3)(-2x - 1) = -(4x + 3)(2x + 1)
 \end{aligned}$$

$$\begin{aligned}
 C_7 &= 4 - (6x - 1)^2 \\
 C_7 &= (2 + 6x - 1)(2 - 6x + 1) \\
 C_7 &= (6x + 1)(3 - 6x) \\
 C_7 &= 3(6x + 1)(1 - 2x) \\
 \\
 C_8 &= (2x + 3)^2 - 16x^2 \\
 C_8 &= (2x + 3 + 4x)(2x + 3 - 4x) \\
 C_8 &= (6x + 3)(-2x + 3) \\
 C_8 &= 3(2x + 1)(-2x + 3) \\
 \\
 C_9 &= (4x - 1)^2 - (x - 3)^2 \\
 C_9 &= (4x - 1 + x - 3)(4x - 1 - x + 3) \\
 C_9 &= (5x - 4)(3x + 2) \\
 \\
 C_{10} &= (x - 5)^2 - (x + 4)^2 \\
 C_{10} &= (x - 5 + x + 4)(x - 5 - x - 4) \\
 C_{10} &= (2x - 1)(-9) = -9(2x - 1)
 \end{aligned}$$

$$\begin{aligned}
 C_6 &= (2x - 3)^2 - (4 + x)^2 \\
 C_6 &= ((2x - 3) + (4 + x))((2x - 3) - (4 + x)) \\
 C_6 &= (2x - 3 + 4 + x)(2x - 3 - 4 - x) \\
 C_6 &= (3x + 1)(x - 7)
 \end{aligned}$$

Corrigé Exercice 10

1) a) $9x^2 - 25 = (3x + 5)(3x - 5)$

b) $B = (3x + 5)(3x - 5) - (5x - 2)(3x + 5)$
 $B = (3x + 5)(3x - 5 - 5x + 2) = (3x + 5)(-2x - 3)$

2) a) $1 - 4x^2 = (1 + 2x)(1 - 2x)$

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

Corrigé Exercice 11

$$A = 3x^2 - 12x^3 = 3x^2(1 - 4x) \qquad B = 4y^2 + 36 = 4(y^2 + 9)$$

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

$$\begin{aligned}
 E &= (x + 2)^2 - (2x - 3)(2x - 3) \\
 E &= (x + 2 + 2x - 3)(x + 2 - 2x + 3) \\
 E &= (3x - 1)(-x + 5)
 \end{aligned}$$

$$G = -4x^2 + 9 = (2x + 3)(-2x + 3)$$

$$\begin{aligned}
 I &= 4x^2 - 1 - (x + 7)(1 - 2x) \\
 I &= (2x + 1)(2x - 1) - (x + 7)(1 - 2x) \\
 I &= (2x + 1)(2x - 1) + (x + 7)(-1 + 2x) \\
 I &= (2x - 1)(2x + 1 + x + 7)
 \end{aligned}$$

$$\begin{aligned}
 C &= x + 3 - 2(x + 3)(5 - x) \\
 C &= (x + 3)(1 - 2(5 - x)) \\
 C &= (x + 3)(1 - 10 + 2x) = (x + 3)2x - 9
 \end{aligned}$$

$$F = 10a^2 - 5a = 5a(2a - 1)$$

$$\begin{aligned}
 H &= (3x + 2) - 2(3x + 2)(1 - x) \\
 H &= (3x + 2)(1 - 2(1 - x)) \\
 H &= (3x + 2)(1 - 2 + 2x) \\
 H &= (3x + 2)(2x - 1)
 \end{aligned}$$

$$\begin{aligned}
 J &= (n + 1)^2 - 9(n - 2)^2 \\
 J &= (n + 1 + 3(n - 2))(n + 1 - 3(n - 2)) \\
 J &= (n + 1 + 3n - 6)(n + 1 - 3n + 6) \\
 J &= (4n - 5)(7 - 2n)
 \end{aligned}$$

$$I = (2x - 1)(3x + 8)$$

$$K = 4y^2 - 2y = 2y(2y - 1)$$

$$L = 1 - 4(x + 3)^2$$

$$L = (1 + 2(x + 3))(1 - 2(x + 3))$$

$$L = (1 + 2x + 6)(1 - 2x - 6)$$

$$L = (2x + 7)(-2x - 5)$$

