

Corrections Savoir Ta. 6

Corrigé Exercice 6

$$A_1 = (3x + 2)(3x - 2) \quad A_2 = (4x + 1)(4x - 1)$$

A_3 non factorisable
(c'est un $a^2 + b^2$)

$$A_4 = (5 + 6x)(5 - 6x)$$

$$A_5 = (x + 1)(x - 1) \quad A_6 = (7x + 4)(-7x + 4)$$

$$A_7 = (9 + 3a)(-9 + 3a)$$

A_8 non factorisable (c'est un $-a^2 - b^2$)

$$A_9 = (x^2 + x)(x^2 - x)$$

$A_{10} = (\sqrt{3}x + 1)(\sqrt{3}x - 1)$
Pas obligatoire, ce n'est pas un carré parfait

$$A_{11} = 2(1 - 4x^2)$$

$$A_{12} = (\sqrt{2} + x)(\sqrt{2} - x)$$

$$A_{11} = 2(1 + 2x)(1 - 2x)$$

Pas obligatoire, ce n'est pas un carré parfait

Corrigé Exercice 7

$$B_1 = 4x^2 + 12x + 9$$

$$a = 2x ; b = 3 \text{ et } 2ab = 12x$$

$$B_1 = (2x + 3)^2$$

$$B_2 = 9x^2 - 6x + 1$$

$$a = 3x ; b = 1 \text{ et } 2ab = 6x$$

$$B_2 = (3x - 1)^2$$

$$B_4 = 25x^2 - 10x + 4$$

$$a = 5x ; b = 2 \text{ et } 2ab = 20x$$

Non factorisable : c'est un $a^2 - ab + b^2$

$$B_5 = 64 + 32x + 4x^2$$

$$a = 8 ; b = 2x \text{ et } 2ab = 32x$$

$$B_5 = (8 + 2x)^2$$

$$B_6 = 9x^2 - 18x + 4$$

$$a = 3x ; b = 2 \text{ et } 2ab = 12x$$

Non factorisable : On n'a pas le $2ab$

B_7 Non factorisable :
c'est un $a^2 - ab + b^2$

$$B_8 = (x - 9)^2$$

$$B_9 = (x + 4)^2$$

$$B_{10} = (x^2 - 1)^2$$

Corrigé Exercice 8

$$A = \left(\frac{x}{3} + \frac{4}{5}\right)\left(\frac{x}{3} - \frac{4}{5}\right)$$

$$B = \left(\frac{x}{2} + 3\right)^2$$

$$C = \left(1 + \frac{2x}{3}\right)\left(1 - \frac{2x}{3}\right)$$

$$D = \left(\frac{5}{x} + 3\right)\left(\frac{5}{x} - 3\right)$$

$$E = \left(2x + \frac{3}{4}\right)\left(2x - \frac{3}{4}\right)$$

$$F = \left(\frac{x}{2} - 2\right)^2$$

Corrigé Exercice 9

$$C_1 = 9x^2 - (x + 2)^2$$

$$C_1 = (3x + (x + 2))(3x - (x + 2))$$

$$C_1 = (3x + x + 2)(3x - x - 2)$$

$$C_1 = (4x + 2)(2x - 2) = 4(2x + 1)(x - 1)$$

$$C_2 = (7 - x)^2 - 1$$

$$C_2 = (7 - x + 1)(7 - x - 1) = (8 - x)(6 - x)$$

$$C_3 = 64 - (2x - 1)^2$$

$$C_3 = (8 + (2x - 1))(8 - (2x - 1))$$

$$C_3 = (8 + 2x - 1)(8 - 2x + 1)$$

$$C_3 = (7 + 2x)(9 - 2x)$$

$$C_7 = 4 - (6x - 1)^2$$

$$C_7 = (2 + 6x - 1)(2 - 6x + 1)$$

$$C_7 = (6x + 1)(3 - 6x)$$

$$C_7 = 3(6x + 1)(1 - 2x)$$

$$C_8 = (2x + 3)^2 - 16x^2$$

$$C_8 = (2x + 3 + 4x)(2x + 3 - 4x)$$

$$C_8 = (6x + 3)(-2x + 3)$$

$$C_8 = 3(2x + 1)(-2x + 3)$$

$$C_9 = (4x - 1)^2 - (x - 3)^2$$

$$C_9 = (4x - 1 + x - 3)(4x - 1 - x + 3)$$

$$C_9 = (5x - 4)(3x + 2)$$

$$C_4 = (2x - 3)^2 - (3 - 4x)^2$$

$$C_4 = ((2x - 3) + (3 - 4x))((2x - 3) - (3 - 4x))$$

$$C_4 = (2x - 3 + 3 - 4x)(2x - 3 - 3 + 4x)$$

$$C_4 = -2x(6x - 6) = -12x(x - 1)$$

$$C_{10} = (x - 5)^2 - (x + 4)^2$$

$$C_{10} = (x - 5 + x + 4)(x - 5 - x - 4)$$

$$C_{10} = (2x - 1)(-9) = -9(2x - 1)$$

$$C_5 = (x + 1)^2 - (2 + 3x)^2$$

$$C_5 = ((x + 1) + (2 + 3x))((x + 1) - (2 + 3x))$$

$$C_5 = (x + 1 + 2 + 3x)(x + 1 - 2 - 3x)$$

$$C_5 = (4x + 3)(-2x - 1) = -(4x + 2)(2x + 1)$$

$$C_6 = (2x - 3)^2 - (4 + x)^2$$

$$C_6 = ((2x - 3) + (4 + x))((2x - 3) - (4 + x))$$

$$C_6 = (2x - 3 + 4 + x)(2x - 3 - 4 - x)$$

$$C_6 = (3x + 1)(x - 7)$$

Corrigé Exercice 10

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

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

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

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

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

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

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

$$D = (x + 1)(-2x + 4) = 2(x + 1)(2 - x)$$

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

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

$$C = (x + 3)(1 - 10 + 2x) = (x + 3)2x - 9$$

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

$$E = (x + 2 + 2x - 3)(x + 2 - 2x + 3)$$

$$E = (3x - 1)(-x + 5)$$

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

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

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

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

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

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

$$I = 4x^2 - 1 - (x + 7)(1 - 2x)$$

$$I = (2x + 1)(2x - 1) - (x + 7)(1 - 2x)$$

$$I = (2x + 1)(2x - 1) + (x + 7)(-1 + 2x)$$

$$I = (2x - 1)(2x + 1 + x + 7)$$

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

$$J = (n + 1)^2 - 9(n - 2)^2$$

$$J = (n + 1 + 3(n - 2))(n + 1 - 3(n - 2))$$

$$J = (n + 1 + 3n - 6)(n + 1 - 3n + 6)$$

$$J = (4n - 5)(7 - 2n)$$

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

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

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

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

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