

Corrections Savoir Ta. 5

Corrigé Exercice 1

1)

$$A = 4x(2x - 1)$$

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

$$C = 3(3 - x^2)$$

$$D = x(-12x + 7)$$

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

$$F \text{ non factorisable}$$

$$H = a(-7b + 2a)$$

$$J = -5x(2x^2 + 5)$$

$$K = 2x(3 - 2x)$$

$$L = 4a(1 + a)$$

$$M = -n(12n + 7)$$

$$N \text{ non factorisable} \\ (\text{« naturellement »})$$

$$P = 3x(2 + x)$$

$$Q = ab(3a - b)$$

$$V = 2(2x^2 + 6x - 1)$$

$$W = x(3x^2 + 2x + 5)$$

$$Y = 3x(3 - x + 5x^2)$$

$$Z = ab(3a + ab - 5b)$$

2)

$$R = 2(x^2 - 11x - 1)$$

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

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

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

Corrigé Exercice 2

1)

$$A = \frac{2}{3}x - \frac{1}{3}x$$

$$B = 5x + \frac{2}{7}x$$

$$C = \frac{2a}{3} - 4a$$

$$D = \frac{x}{5} + \frac{3x}{2}$$

$$E = n - \frac{4n}{3}$$

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

$$B = \left(5 + \frac{2}{7}\right)x$$

$$C = \left(\frac{2}{3} - 4\right)a$$

$$D = \left(\frac{1}{5} + \frac{3}{2}\right)x$$

$$E = \left(1 - \frac{4}{3}\right)n$$

$$A = \frac{1}{3}x$$

$$B = \frac{37}{7}x$$

$$C = -\frac{10}{3}a$$

$$D = \frac{17}{10}x$$

$$E = -\frac{1}{3}n$$

2)

$$F = (1 - 3)\sqrt{7}$$

$$G = \left(\frac{3}{4} - 1\right)\pi$$

$$H = (12 - 6x)\sqrt{x}$$

$$I = \left(\frac{2}{3} - \frac{1}{4}\right)\pi$$

$$J = \left(3 - \frac{2}{5}\right)\sqrt{2}$$

$$F = -2\sqrt{7}$$

$$G = -\frac{1}{4}\pi$$

$$I = \frac{5}{12}\pi$$

$$J = \frac{13}{5}\sqrt{2}$$

Corrigé Exercice 3

$$1) A = 2(2x^2 - \frac{5}{2}x + \frac{1}{2}) \quad \text{et} \quad B = 2(-x^2 + \frac{1}{2}x - 2)$$

$$2) A = -(-4x^2 + 5x - 1) \quad \text{et} \quad B = -(2x^2 - x + 4)$$

$$3) A = x(4x - 5 + \frac{1}{x}) \quad \text{et} \quad C = x(x^2 + 3x - 8 + \frac{4}{x})$$

$$4) B = x^2(-2 + \frac{x}{x^2} - \frac{4}{x^2}) = x^2(-2 + \frac{1}{x} - \frac{4}{x^2}) \quad \text{et} \quad C = x^2(x + 3 - \frac{8x}{x^2} + \frac{4}{x^2}) = x^2(x + 3 - \frac{8}{x} + \frac{4}{x^2})$$

Corrigé Exercice 4

1)

$$A = 2x + x(3x + 1)$$

$$A = x(2 + (3x + 1))$$

$$A = x(3x + 3) = 3x(x + 1)$$

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

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

$$B = x^3(6x - 1)$$

$$C = (3x + 7)(2 - 5x) + (3x + 7)(x + 6)$$

$$C = (3x + 7)((2 - 5x) + (x + 6))$$

$$C = (3x + 7)(-4x + 8) = -4(3x + 7)(x - 2)$$

$$D = (x + 3)^2 + (5 - 2x)(x + 3)$$

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

$$D = (x + 3)(-x + 8)$$

Corrigé Exercice 4bis

2)

$$E = (6x + 2)(5 - 2x) - (6x + 2)(7x - 3)$$

$$E = (6x + 2)((5 - 2x) - (7x - 3))$$

$$E = (6x + 2)(5 - 2x - 7x + 3)$$

$$E = (6x + 2)(-9x + 8) = 2(3x + 1)(-9x + 8)$$

$$F = (x + 3)(2x - 5) + 2(3x + 6)(x + 3)$$

$$F = (x + 3)((2x - 5) + 2(3x + 6))$$

$$F = (x + 3)(2x - 5 + 6x + 12)$$

$$F = (x + 3)(8x + 7)$$

$$G = (n + 1)(n - 1) - 2(n - 1)(2n + 6)$$

$$G = (n - 1)((n + 1) - 2(2n + 6))$$

$$G = (n - 1)(n + 1 - 4n - 12)$$

$$G = (n - 1)(-3n - 11) = -(n - 1)(3n + 11)$$

$$H = (2x + 3) - (2x + 3)(5x + 7)$$

$$H = (2x + 3)(1 - (5x + 7))$$

$$H = (2x + 3)(1 - 5x - 7)$$

$$H = (2x + 3)(-5x - 6) = -(2x + 3)(5x + 6)$$

$$I = (4 - 6x)(4 + 6x) - (4 - 6x)^2$$

$$I = (4 - 6x)((4 + 6x) - (4 - 6x))$$

$$I = (4 - 6x)(4 + 6x - 4 + 6x)$$

$$I = (4 - 6x)12x = 24x(2 - 3x)$$

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

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

$$J = x^3(x - 1)$$

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

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

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

$$L = (2x + 5) + (2x + 5)^2$$

$$L = (2x + 5)(1 + (2x + 5))$$

$$L = (2x + 5)(2x + 6)$$

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

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

$$M = (2x - 1)(8x - 2) = 2(2x - 1)(4x - 1)$$

$$N = (5t + 3)^2 + 3(5t + 3)(7t - 2)$$

$$N = (5t + 3)((5t + 3) + 3(7t - 2))$$

$$N = (5t + 3)(5t + 3 + 21t - 6)$$

$$N = (5t + 3)(26t - 3)$$

$$O = (1 + 3x)^2 + (1 + 3x)$$

$$O = (1 + 3x)((1 + 3x) + 1)$$

$$O = (1 + 3x)(1 + 3x + 1)$$

$$O = (1 + 3x)(3x + 2)$$

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

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

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

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

$$Q = (6 - 2x)(5x + 4) + 3(3 + 2x)(6 - 2x)$$

$$Q = (6 - 2x)((5x + 4) + 3(3 + 2x))$$

$$Q = (6 - 2x)(5x + 4 + 9 + 6x)$$

$$Q = (6 - 2x)(11x + 13) = 2(3 - x)(11x + 13)$$

Corrigé Exercice 5

1) a) $(2x - 1)(6 + x) + (4x - 3)(2x - 1) = (2x - 1)((6 + x) + (4x - 3)) = (2x - 1)(5x + 3)$

b) $C = (2x - 1)(6 + x) + (4x - 3)(2x - 1) - 2(5x + 3)^2$

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

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

$$C = (5x + 3)(2x - 1 - 10x - 6)$$

$$C = (5x + 3)(-8x - 7)$$

2) a) $A + 2B = (3 - 2x)(5x - 1) + 2((5x - 1)^2)$
 $= 15x - 3 - 10x^2 + 2x + 2(25x^2 - 10x + 1)$
 $= -10x^2 + 17x - 3 + 50x^2 - 20x + 2$
 $= 40x^2 - 3x - 1$

b) $A - B = (5x - 1)^2 - (3 - 2x)(5x - 1)$
 $= (5x - 1)((5x - 1) - (3 - 2x))$
 $= (5x - 1)(5x - 1 - 3 + 2x)$
 $= (5x - 1)(7x - 4)$