



### Exercice 1

Développer les expressions suivantes :

$$A = 5(3x + 2) \quad B = -3(2x - 5) \quad C = 5x(-3x + 2) \quad D = -4(5x - 2)$$

### Exercice 2

Développer puis réduire les expressions suivantes :

$$A = 3(2x - 4) + 5(3 - x) \quad B = 2x(5 + 3x) - 4(x + 5)$$

### Exercice 3

Développer puis réduire les expressions suivantes :

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

$$B = (6x^2 - 5x + 7) - (4x^2 - 5x - 5)$$

$$C = -(3x^2 - 5x + 2) + (2x^2 - 2x + 8) - (3 - 2x + 2x^2)$$

### Exercice 4

Développer puis réduire les expressions suivantes :

$$A = (4x + 5)(3x + 2) \quad B = (5x - 2)(x + 7) \quad C = (4x - 3)(5x - 2)$$

### Exercice 5

Développer, réduire et ordonner les expressions suivantes :

$$A = (6x - 4) - (2x - 8) \quad B = (6x - 4)(2x - 8) \quad C = (6x - 4) + (2x - 8) \quad D = 6x - 4(2x - 8)$$

### Exercice 6

Développer puis réduire les expressions suivantes :

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

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

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

### Exercice 7

On considère l'expression  $I = 7x^2 - 4x + 8$ .

Calculer I pour a)  $x = 3$       b)  $x = -4$       c)  $x = -3$

### Exercice 8

Factoriser :

$$A = 6x + 6y \quad B = 20 - 30a \quad C = 15a - 25b \quad D = 9a^2 + 12a \quad E = 15x^2 + 5x \quad F = 16x^2 + 24x$$

### Exercice 9

Factoriser les expressions suivantes :

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

$$B = (4x - 5)(2 - x) + (4x - 5)^2$$

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

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

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

### Exercice 10 (Mélange)

Factoriser les expressions suivantes :

$$A = 2 + 2x$$

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

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

$$D = 2ab + 8b^2$$

$$E = (x + 1)(x + 2) - 5(x + 2)$$

$$F = (x + 2)(x + 1) + (x + 2)(7x - 5)$$

$$G = (x - 6)(2 - x) - (2 - x)(3 + 4x)$$



## Exercice 1

$$A = 5(3x + 2)$$

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

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

$$D = -4(5x - 2)$$

$$A = 5 \times 3x + 5 \times 2$$

$$B = -3 \times 2x - 3 \times (-5)$$

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

$$D = -4 \times 5x - 4 \times (-2)$$

$$A = 15x + 10$$

$$B = -6x + 15$$

$$C = -15x^2 + 10x$$

$$D = -20x + 8$$

## Exercice 2

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

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

$$A = 6x - 12 + 15 - 5x$$

$$B = 10x + 6x^2 - 4x - 20$$

$$A = x + 3$$

$$B = 6x^2 + 6x - 20$$

## Exercice 3

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

$$A = 4x - 8 - 3x + 7 - 2x + 3$$

$$A = -x + 2$$

$$B = (6x^2 - 5x + 7) - (4x^2 - 5x - 5)$$

$$B = 6x^2 - 5x + 7 - 4x^2 + 5x + 5$$

$$B = 2x^2 + 12$$

$$C = -(3x^2 - 5x + 2) + (2x^2 - 2x + 8) - (3 - 2x + 2x^2)$$

$$C = -3x^2 + 5x - 2 + 2x^2 - 2x + 8 - 3 + 2x - 2x^2$$

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

## Exercice 4

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

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

$$C = (4x - 3)(5x - 2)$$

$$A = 4x \times 3x + 4x \times 2 + 5 \times 3x + 5 \times 2$$

$$B = 5x \times x + 5x \times 7 - 2 \times x - 2 \times 7$$

$$C = 4x \times 5x + 4x \times (-2) - 3 \times 5x - 3 \times (-2)$$

$$A = 12x^2 + 8x + 15x + 10$$

$$B = 5x^2 + 35x - 2x - 14$$

$$C = 20x^2 - 8x - 15x + 6$$

$$A = 12x^2 + 23x + 10$$

$$B = 5x^2 + 33x - 14$$

$$C = 20x^2 - 23x + 6$$

## Exercice 5

$$A = (6x - 4) - (2x - 8)$$

$$B = (6x - 4)(2x - 8)$$

$$C = (6x - 4) + (2x - 8)$$

$$D = 6x - 4(2x - 8)$$

$$A = 6x - 4 - 2x + 8$$

$$B = 12x^2 - 48x - 8x + 32$$

$$C = 6x - 4 + 2x - 8$$

$$D = 6x - 8x + 32$$

$$A = 4x + 4$$

$$B = 12x^2 - 56x + 32$$

$$C = 8x - 12$$

$$D = -2x + 32$$

## Exercice 6

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

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

$$A = (3x^2 + 5x - 15x - 25) + (20x^2 - 8x - 10x + 4)$$

$$B = (6x^2 - 15x + 4x - 10) - (24x^2 + 12x - 20x - 10)$$

$$A = 3x^2 + 5x - 15x - 25 + 20x^2 - 8x - 10x + 4$$

$$B = 6x^2 - 15x + 4x - 10 - 24x^2 - 12x + 20x + 10$$

$$A = 23x^2 - 28x - 21$$

$$B = -18x^2 - 3x$$

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

$$C = (8x^2 - 20x - 10x + 25) - (8x^2 - 12x + 2x - 3)$$

$$C = 8x^2 - 20x - 10x + 25 - 8x^2 + 12x - 2x + 3$$

$$C = -20x + 28$$

### Exercise 7

$$I = 7x^2 - 4x + 8$$

$$a) x = 3$$

$$I = 7x^2 - 4x + 8$$

$$I = 7 \times 3^2 - 4 \times 3 + 8$$

$$I = 7 \times 9 - 4 \times 3 + 8$$

$$I = 63 - 4 \times 3 + 8$$

$$I = 63 - 12 + 8$$

$$I = 51 + 8$$

$$I = 59$$

$$b) x = -4$$

$$I = 7x^2 - 4x + 8$$

$$I = 7 \times (-4)^2 - 4 \times (-4) + 8$$

$$I = 7 \times 16 - 4 \times (-4) + 8$$

$$I = 112 - 4 \times (-4) + 8$$

$$I = 112 + 16 + 8$$

$$I = 128 + 8$$

$$I = 136$$

$$c) x = -3$$

$$I = 7x^2 - 4x + 8$$

$$I = 7 \times (-3)^2 - 4 \times (-3) + 8$$

$$I = 7 \times 9 - 4 \times (-3) + 8$$

$$I = 63 - 4 \times (-3) + 8$$

$$I = 63 + 12 + 8$$

$$I = 75 + 8$$

$$I = 83$$

### Exercise 8

$$A = 6x + 6y$$

$$B = 20 - 30a$$

$$C = 15a - 25b$$

$$D = 9a^2 + 12a$$

$$E = 15x^2 + 5x$$

$$F = 16x^2 + 24x$$

$$A = 6(x + y)$$

$$B = 10(2 - 3a)$$

$$C = 5(3a - 5b)$$

$$D = 3a(3a + 4)$$

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

$$F = 8x(2x + 3)$$

### Exercise 9

$$A = \underline{(6x + 3)}(4x - 5) + (3x + 1)\underline{(6x + 3)}$$

$$A = \underline{(6x + 3)}[(4x - 5) + (3x + 1)]$$

$$A = (6x + 3)[4x - 5 + 3x + 1]$$

$$A = (6x + 3)(7x - 4)$$

$$B = (4x - 5)(2 - x) + (4x - 5)^2$$

$$B = \underline{(4x - 5)}(2 - x) + \underline{(4x - 5)}(4x - 5)$$

$$B = \underline{(4x - 5)}[(2 - x) + (4x - 5)]$$

$$B = (4x - 5)[2 - x + 4x - 5]$$

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

$$C = \underline{(3x + 5)}(3 - 2x) - \underline{(3x + 5)}(2 + 5x)$$

$$C = \underline{(3x + 5)}[(3 - 2x) - (2 + 5x)]$$

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

$$C = (3x + 5)(-7x + 1)$$

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

$$D = \underline{(3x + 4)}(3x + 4) - \underline{(3x + 4)}(5x + 6)$$

$$D = \underline{(3x + 4)}[(3x + 4) - (5x + 6)]$$

$$D = (3x + 4)[3x + 4 - 5x - 6]$$

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

$$E = \underline{(4x + 3)}(3 - 2x) - \underline{(4x + 3)}(5 - 4x)$$

$$E = \underline{(4x + 3)}[(3 - 2x) - (5 - 4x)]$$

$$E = (4x + 3)[3 - 2x - 5 + 4x]$$

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

### Exercise 10

$$A = 2 + 2x$$

$$A = 2 \times 1 + 2 \times x$$

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

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

$$B = \underline{(2x + 1)}(2x + 1) + \underline{(2x + 1)}(x + 3)$$

$$B = \underline{(2x + 1)}[(2x + 1) + (x + 3)]$$

$$B = (2x + 1)[2x + 1 + x + 3]$$

$$B = (2x + 1)(3x + 4)$$

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

$$C = \underline{(x - 3)}(x - 3) - \underline{(x - 3)}(4x + 1)$$

$$C = \underline{(x - 3)}[(x - 3) - (4x + 1)]$$

$$C = (x - 3)[x - 3 - 4x - 1]$$

$$C = (x - 3)(-3x - 4)$$

$$D = 2ab + 8b^2$$

$$D = 2 \times a \times b + 2 \times 4 \times b \times b$$

$$D = 2b(a + 4b)$$

$$E = (x + 1)\underline{(x + 2)} - 5(x + 2)$$

$$E = \underline{(x + 2)}[(x + 1) - 5]$$

$$E = (x + 2)[x + 1 - 5]$$

$$E = (x + 2)(x - 4)$$

$$F = \underline{(x + 2)}(x + 1) + \underline{(x + 2)}(7x - 5)$$

$$F = \underline{(x + 2)}[(x + 1) + (7x - 5)]$$

$$F = (x + 2)[x + 1 + 7x - 5]$$

$$F = (x + 2)(8x - 4)$$

$$G = (x - 6)\underline{(2 - x)} - \underline{(2 - x)}(3 + 4x)$$

$$G = \underline{(2 - x)}[(x - 6) - (3 + 4x)]$$

$$G = (2 - x)(x - 6 - 3 - 4x)$$

$$G = (2 - x)(-3x - 9)$$