

Exercice 1

On donne $A = (-4x + 4)(6x - 9) + (-4x + 4)$.

- ▶1. Développer et réduire A .
- ▶2. Factoriser A .
- ▶3. Calculer A pour $x = \frac{-5}{9}$.
- ▶4. Résoudre l'équation $A = 0$.

Exercice 2

On donne $A = (-2x + 9)(-9x - 5) + (-9x - 5)^2$.

- ▶1. Développer et réduire A .
- ▶2. Factoriser A .
- ▶3. Calculer A pour $x = \frac{-4}{9}$.
- ▶4. Résoudre l'équation $A = 0$.

Exercice 3

On donne $A = (-7x - 1)^2 + (-7x - 1)(-4x - 6)$.

- ▶1. Développer et réduire A .
- ▶2. Factoriser A .
- ▶3. Calculer A pour $x = 0$.
- ▶4. Résoudre l'équation $A = 0$.

Exercice 4

On donne $A = (2x - 5)(-10x - 4) - (-10x - 4)$.

- ▶1. Développer et réduire A .
- ▶2. Factoriser A .
- ▶3. Calculer A pour $x = \frac{-2}{3}$.
- ▶4. Résoudre l'équation $A = 0$.

Exercice 5

On donne $A = (-x + 3)(4x - 4) + 16x^2 - 16$.

- ▶1. Développer et réduire A .
- ▶2. Factoriser A .
- ▶3. Calculer A pour $x = \frac{-3}{10}$.
- ▶4. Résoudre l'équation $A = 0$.

Exercice 6

On donne $A = (2x + 9)^2 + (9x + 6)(2x + 9)$.

- ▶1. Développer et réduire A .
- ▶2. Factoriser A .
- ▶3. Calculer A pour $x = \frac{-1}{5}$.
- ▶4. Résoudre l'équation $A = 0$.

Corrigé de l'exercice 1

Développer et réduire les expressions suivantes.

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

$$A = (4x)^2 + 2 \times 4x \times 3 + 3^2$$

$$A = 16x^2 + 24x + 9$$

$$B = (4x + 8)(4x - 8)$$

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

$$B = 16x^2 - 64$$

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

$$C = (6x)^2 - 2 \times 6x \times 3 + 3^2$$

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

$$D = (-3x + 3)(-5x - 10)$$

$$D = 15x^2 + 30x + (-15x) + (-30)$$

$$D = 15x^2 + 15x - 30$$

$$E = (-3x - 1)(-9x - 4) - (10x + 10)^2$$

$$E = 27x^2 + 12x + 9x + 4 - ((10x)^2 + 2 \times 10x \times 10 + 10^2)$$

$$E = 27x^2 + 21x + 4 - (100x^2 + 200x + 100)$$

$$E = 27x^2 + 21x + 4 - 100x^2 - 200x - 100$$

$$E = -73x^2 - 179x - 96$$

$$F = (5x - 6)(5x + 6) + (10x - 1)^2$$

$$F = (5x)^2 - 6^2 + (10x)^2 - 2 \times 10x \times 1 + 1^2$$

$$F = 25x^2 - 36 + 100x^2 - 20x + 1$$

$$F = 125x^2 - 20x - 35$$

Corrigé de l'exercice 2

Développer et réduire les expressions suivantes.

$$A = (-6x + 2)(8x - 3)$$

$$A = -48x^2 + 18x + 16x + (-6)$$

$$A = -48x^2 + 34x - 6$$

$$B = (6x + 8)^2$$

$$B = (6x)^2 + 2 \times 6x \times 8 + 8^2$$

$$B = 36x^2 + 96x + 64$$

$$C = (6x + 9)(6x - 9)$$

$$C = (6x)^2 - 9^2$$

$$C = 36x^2 - 81$$

$$D = (5x - 1)^2$$

$$D = (5x)^2 - 2 \times 5x \times 1 + 1^2$$

$$D = 25x^2 - 10x + 1$$

$$E = -(8x + 9)(6x + 3) - (6x - 10)(6x + 10)$$

$$E = -(48x^2 + 24x + 54x + 27) - ((6x)^2 - 10^2)$$

$$E = -(48x^2 + 78x + 27) - (36x^2 - 100)$$

$$E = -48x^2 - 78x - 27 - 36x^2 + 100$$

$$E = -84x^2 - 78x + 73$$

$$F = -(10x - 3)^2 + (8x + 10)^2$$

$$F = -((10x)^2 - 2 \times 10x \times 3 + 3^2) + (8x)^2 + 2 \times 8x \times 10 + 10^2$$

$$F = -(100x^2 - 60x + 9) + 64x^2 + 160x + 100$$

$$F = -100x^2 + 60x - 9 + 64x^2 + 160x + 100$$

$$F = -36x^2 + 220x + 91$$

Corrigé de l'exercice 3

Développer et réduire les expressions suivantes.

$$A = (6x + 9)^2$$

$$A = (6x)^2 + 2 \times 6x \times 9 + 9^2$$

$$A = 36x^2 + 108x + 81$$

$$B = (-5x + 1)(7x + 4)$$

$$B = -35x^2 + (-20x) + 7x + 4$$

$$B = -35x^2 - 13x + 4$$

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

$$C = (8x)^2 - 6^2$$

$$C = 64x^2 - 36$$

$$D = (5x - 9)^2$$

$$D = (5x)^2 - 2 \times 5x \times 9 + 9^2$$

$$D = 25x^2 - 90x + 81$$

$$E = (3x + 3)(3x - 3) + (7x - 9)(4x + 6)$$

$$E = (3x)^2 - 3^2 + 28x^2 + 42x + (-36x) + (-54)$$

$$E = 9x^2 - 9 + 28x^2 + 6x - 54$$

$$E = 37x^2 + 6x - 63$$

$$F = (3x - 3)^2 + (x + 10)^2$$

$$F = (3x)^2 - 2 \times 3x \times 3 + 3^2 + x^2 + 2 \times x \times 10 + 10^2$$

$$F = 9x^2 - 18x + 9 + x^2 + 20x + 100$$

$$F = 10x^2 + 2x + 109$$

Corrigé de l'exercice 4

Développer et réduire les expressions suivantes.

$$A = (-7x - 10)(-3x + 5)$$

$$A = 21x^2 + (-35x) + 30x + (-50)$$

$$A = 21x^2 - 5x - 50$$

$$B = (3x - 6)(3x + 6)$$

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

$$B = 9x^2 - 36$$

$$C = (10x - 3)^2$$

$$C = (10x)^2 - 2 \times 10x \times 3 + 3^2$$

$$C = 100x^2 - 60x + 9$$

$$D = (6x + 9)^2$$

$$D = (6x)^2 + 2 \times 6x \times 9 + 9^2$$

$$D = 36x^2 + 108x + 81$$

$$E = -(9x + 2)^2 - (8x + 5)(8x - 5)$$

$$E = -((9x)^2 + 2 \times 9x \times 2 + 2^2) - ((8x)^2 - 5^2)$$

$$E = -(81x^2 + 36x + 4) - (64x^2 - 25)$$

$$E = -81x^2 - 36x - 4 - 64x^2 + 25$$

$$E = -145x^2 - 36x + 21$$

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

$$F = -(-49x^2 + 35x + (-49x) + 35) - ((7x)^2 - 2 \times 7x \times 9 + 9^2)$$

$$F = -(-49x^2 - 14x + 35) - (49x^2 - 126x + 81)$$

$$F = 49x^2 + 14x - 35 - 49x^2 + 126x - 81$$

$$F = 140x - 116$$

Corrigé de l'exercice 5

Développer et réduire les expressions suivantes.

$$A = (7x + 8)(7x - 8)$$

$$A = (7x)^2 - 8^2$$

$$A = 49x^2 - 64$$

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

$$B = (3x)^2 + 2 \times 3x \times 2 + 2^2$$

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

$$C = (-5x - 1)(-10x + 7)$$

$$C = 50x^2 + (-35x) + 10x + (-7)$$

$$C = 50x^2 - 25x - 7$$

$$D = (5x - 1)^2$$

$$D = (5x)^2 - 2 \times 5x \times 1 + 1^2$$

$$D = 25x^2 - 10x + 1$$

$$E = (3x - 3)^2 - (-7x - 9)(-8x - 6)$$

$$E = (3x)^2 - 2 \times 3x \times 3 + 3^2 - (56x^2 + 42x + 72x + 54)$$

$$E = 9x^2 - 18x + 9 - (56x^2 + 114x + 54)$$

$$E = 9x^2 - 18x + 9 - 56x^2 - 114x - 54$$

$$E = -47x^2 - 132x - 45$$

$$F = -(6x - 9)(6x + 9) - (7x + 2)^2$$

$$F = -((6x)^2 - 9^2) - ((7x)^2 + 2 \times 7x \times 2 + 2^2)$$

$$F = -(36x^2 - 81) - (49x^2 + 28x + 4)$$

$$F = -36x^2 + 81 - 49x^2 - 28x - 4$$

$$F = -85x^2 - 28x + 77$$

Corrigé de l'exercice 6

Développer et réduire les expressions suivantes.

$$A = (7x + 9)^2$$

$$A = (7x)^2 + 2 \times 7x \times 9 + 9^2$$

$$A = 49x^2 + 126x + 81$$

$$B = (7x - 6)^2$$

$$B = (7x)^2 - 2 \times 7x \times 6 + 6^2$$

$$B = 49x^2 - 84x + 36$$

$$C = (-10x + 10)(5x + 1)$$

$$C = -50x^2 + (-10x) + 50x + 10$$

$$C = -50x^2 + 40x + 10$$

$$D = (4x + 8)(4x - 8)$$

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

$$D = 16x^2 - 64$$

$$E = (-4x - 4)(-5x - 10) + (7x + 8)(7x - 8)$$

$$E = 20x^2 + 40x + 20x + 40 + (7x)^2 - 8^2$$

$$E = 20x^2 + 60x + 40 + 49x^2 - 64$$

$$E = 69x^2 + 60x - 24$$

$$F = (2x + 7)^2 + (8x - 10)^2$$

$$F = (2x)^2 + 2 \times 2x \times 7 + 7^2 + (8x)^2 - 2 \times 8x \times 10 + 10^2$$

$$F = 4x^2 + 28x + 49 + 64x^2 - 160x + 100$$

$$F = 68x^2 - 132x + 149$$