

Exercice 1

Factoriser chacune des expressions littérales suivantes :

$$\begin{array}{l}
 A = 9x^2 - 81 \\
 B = (6x - 6) \times (2x - 2) + (-2x - 10) \times (2x - 2) \\
 C = 100x^2 + 100x + 25
 \end{array}
 \quad \left| \quad
 \begin{array}{l}
 D = -100 + (-5x - 7)^2 \\
 E = (5x + 1)^2 + (5x + 1) \times (9x + 10) \\
 F = (5x - 2) \times (7x - 5) - (5x - 2)
 \end{array}$$

Exercice 2

Factoriser chacune des expressions littérales suivantes :

$$\begin{array}{l}
 A = 36x^2 - 1 \\
 B = (9x + 4)^2 - 49x^2 \\
 C = -(8x - 6) \times (5x + 10) + (4x - 9) \times (5x + 10)
 \end{array}
 \quad \left| \quad
 \begin{array}{l}
 D = 9x^2 + 18x + 9 \\
 E = 5x + 10 + (5x + 10) \times (9x - 4) \\
 F = (7x + 5) \times (-4x + 5) + (7x + 5)^2
 \end{array}$$

Exercice 3

Factoriser chacune des expressions littérales suivantes :

$$\begin{array}{l}
 A = -(-10x + 9)^2 + x^2 \\
 B = 25x^2 - 36 \\
 C = (4x - 7) \times (2x + 4) + (4x - 7) \times (2x - 7)
 \end{array}
 \quad \left| \quad
 \begin{array}{l}
 D = 100x^2 + 140x + 49 \\
 E = -(6x - 7) \times (x - 5) + x - 5 \\
 F = (4x + 7) \times (-3x + 5) + (4x + 7)^2
 \end{array}$$

Exercice 4

Factoriser chacune des expressions littérales suivantes :

$$\begin{array}{l}
 A = 81x^2 - 9 \\
 B = 81x^2 + 126x + 49 \\
 C = -(9x - 6)^2 + 1
 \end{array}
 \quad \left| \quad
 \begin{array}{l}
 D = (9x + 6) \times (9x + 9) + (5x + 5) \times (9x + 6) \\
 E = (3x + 10) \times (5x - 6) + 3x + 10 \\
 F = (-10x + 3) \times (-10x + 8) - (-10x + 3)^2
 \end{array}$$

Exercice 5

Factoriser chacune des expressions littérales suivantes :

$$\begin{array}{l}
 A = 16x^2 + 8x + 1 \\
 B = -36x^2 + (-4x + 7)^2 \\
 C = -(6x + 7) \times (9x + 5) + (9x + 5) \times (-4x + 10)
 \end{array}
 \quad \left| \quad
 \begin{array}{l}
 D = -49x^2 + 1 \\
 E = 9x + 2 + (9x + 2) \times (6x + 2) \\
 F = (-10x - 6)^2 + (-4x + 3) \times (-10x - 6)
 \end{array}$$

Exercice 6

Factoriser chacune des expressions littérales suivantes :

$$\begin{array}{l}
 A = -64x^2 + 36 \\
 B = (-9x + 4)^2 - 64x^2 \\
 C = 25x^2 + 20x + 4
 \end{array}
 \quad \left| \quad
 \begin{array}{l}
 D = (-3x + 2) \times (8x + 10) + (-3x + 2) \times (8x - 6) \\
 E = 4x - 4 + (6x + 2) \times (4x - 4) \\
 F = (-4x + 9)^2 - (-10x + 7) \times (-4x + 9)
 \end{array}$$

Corrigé de l'exercice 1

Factoriser chacune des expressions littérales suivantes :

$$A = 9x^2 - 81$$

$$A = (\sqrt{9x})^2 - (\sqrt{81})^2$$

$$A = (\sqrt{9x}\sqrt{81}) \times (\sqrt{9x} - (\sqrt{81}))$$

$$A = (3x + 9) \times (3x - 9)$$

$$B = (6x - 6) \times (2x - 2) + (-2x - 10) \times (2x - 2)$$

$$B = (2x - 2) \times (6x - 6 - 2x - 10)$$

$$B = (2x - 2) \times (6x - 2x - 6 - 10)$$

$$B = (2x - 2) \times (4x - 16)$$

$$C = 100x^2 + 100x + 25$$

$$C = (10x)^2 + 2 \times 10x \times 5 + 5^2$$

$$C = (10x + 5)^2$$

$$D = -100 + (-5x - 7)^2$$

$$D = -10^2 + (-5x - 7)^2$$

$$D = (-5x - 7 + 10) \times (-5x - 7 - 10)$$

$$D = (-5x + 3) \times (-5x - 17)$$

$$E = (5x + 1)^2 + (5x + 1) \times (9x + 10)$$

$$E = (5x + 1) \times (5x + 1) + (5x + 1) \times (9x + 10)$$

$$E = (5x + 1) \times (5x + 1 + 9x + 10)$$

$$E = (5x + 1) \times (5x + 9x + 1 + 10)$$

$$E = (5x + 1) \times (14x + 11)$$

$$F = (5x - 2) \times (7x - 5) - (5x - 2)$$

$$F = (5x - 2) \times (7x - 5) - (5x - 2) \times 1$$

$$F = (5x - 2) \times (7x - 5 - 1)$$

$$F = (5x - 2) \times (7x - 6)$$

Corrigé de l'exercice 2

Factoriser chacune des expressions littérales suivantes :

$$A = 36x^2 - 1$$

$$A = (\sqrt{36x})^2 - (\sqrt{1})^2$$

$$A = (\sqrt{36x}\sqrt{1}) \times (\sqrt{36x} - (\sqrt{1}))$$

$$A = (6x + 1) \times (6x - 1)$$

$$B = (9x + 4)^2 - 49x^2$$

$$B = (9x + 4)^2 - (7x)^2$$

$$B = (9x + 4 + 7x) \times (9x + 4 - 7x)$$

$$B = (9x + 7x + 4) \times (9x - 7x + 4)$$

$$B = (16x + 4) \times (2x + 4)$$

$$C = -(8x - 6) \times (5x + 10) + (4x - 9) \times (5x + 10)$$

$$C = (5x + 10) \times (-(8x - 6) + 4x - 9)$$

$$C = (5x + 10) \times (-8x + 6 + 4x - 9)$$

$$C = (5x + 10) \times (-8x + 4x + 6 - 9)$$

$$C = (5x + 10) \times (-4x - 3)$$

$$D = 9x^2 + 18x + 9$$

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

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

$$E = 5x + 10 + (5x + 10) \times (9x - 4)$$

$$E = (5x + 10) \times 1 + (5x + 10) \times (9x - 4)$$

$$E = (5x + 10) \times (1 + 9x - 4)$$

$$E = (5x + 10) \times (9x + 1 - 4)$$

$$E = (5x + 10) \times (9x - 3)$$

$$F = (7x + 5) \times (-4x + 5) + (7x + 5)^2$$

$$F = (7x + 5) \times (-4x + 5) + (7x + 5) \times (7x + 5)$$

$$F = (7x + 5) \times (-4x + 5 + 7x + 5)$$

$$F = (7x + 5) \times (-4x + 7x + 5 + 5)$$

$$F = (7x + 5) \times (3x + 10)$$

Corrigé de l'exercice 3

Factoriser chacune des expressions littérales suivantes :

$$A = -(-10x + 9)^2 + x^2$$

$$A = (x - 10x + 9) \times (x - (-10x + 9))$$

$$A = (-9x + 9) \times (x + 10x - 9)$$

$$A = (-9x + 9) \times (11x - 9)$$

$$B = 25x^2 - 36$$

$$B = (\sqrt{25}x)^2 - (\sqrt{36})^2$$

$$B = (\sqrt{25}x\sqrt{36}) \times (\sqrt{25}x - (\sqrt{36}))$$

$$B = (5x + 6) \times (5x - 6)$$

$$C = (4x - 7) \times (2x + 4) + (4x - 7) \times (2x - 7)$$

$$C = (4x - 7) \times (2x + 4 + 2x - 7)$$

$$C = (4x - 7) \times (2x + 2x + 4 - 7)$$

$$C = (4x - 7) \times (4x - 3)$$

$$D = 100x^2 + 140x + 49$$

$$D = (10x)^2 + 2 \times 10x \times 7 + 7^2$$

$$D = (10x + 7)^2$$

$$E = -(6x - 7) \times (x - 5) + x - 5$$

$$E = -(6x - 7) \times (x - 5) + (x - 5) \times 1$$

$$E = (x - 5) \times (-(6x - 7) + 1)$$

$$E = (x - 5) \times (-6x + 7 + 1)$$

$$E = (x - 5) \times (-6x + 8)$$

$$F = (4x + 7) \times (-3x + 5) + (4x + 7)^2$$

$$F = (4x + 7) \times (-3x + 5) + (4x + 7) \times (4x + 7)$$

$$F = (4x + 7) \times (-3x + 5 + 4x + 7)$$

$$F = (4x + 7) \times (-3x + 4x + 5 + 7)$$

$$F = (4x + 7) \times (x + 12)$$

Corrigé de l'exercice 4

Factoriser chacune des expressions littérales suivantes :

$$A = 81x^2 - 9$$

$$A = (\sqrt{81}x)^2 - (\sqrt{9})^2$$

$$A = (\sqrt{81}x\sqrt{9}) \times (\sqrt{81}x - (\sqrt{9}))$$

$$A = (9x + 3) \times (9x - 3)$$

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

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

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

$$C = -(9x - 6)^2 + 1$$

$$C = -(9x - 6)^2 + 1^2$$

$$C = (1 + 9x - 6) \times (1 - (9x - 6))$$

$$C = (9x + 1 - 6) \times (1 - 9x + 6)$$

$$C = (9x + 1 - 6) \times (-9x + 1 + 6)$$

$$C = (9x - 5) \times (-9x + 7)$$

$$D = (9x + 6) \times (9x + 9) + (5x + 5) \times (9x + 6)$$

$$D = (9x + 6) \times (9x + 9 + 5x + 5)$$

$$D = (9x + 6) \times (9x + 5x + 9 + 5)$$

$$D = (9x + 6) \times (14x + 14)$$

$$E = (3x + 10) \times (5x - 6) + 3x + 10$$

$$E = (3x + 10) \times (5x - 6) + (3x + 10) \times 1$$

$$E = (3x + 10) \times (5x - 6 + 1)$$

$$E = (3x + 10) \times (5x - 5)$$

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

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

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

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

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

$$F = (-10x + 3) \times 5$$

Corrigé de l'exercice 5

Factoriser chacune des expressions littérales suivantes :

$$A = 16x^2 + 8x + 1$$

$$A = (4x)^2 + 2 \times 4x \times 1 + 1^2$$

$$A = (4x + 1)^2$$

$$B = -36x^2 + (-4x + 7)^2$$

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

$$B = (-4x + 7 + 6x) \times (-4x + 7 - 6x)$$

$$B = (-4x + 6x + 7) \times (-4x - 6x + 7)$$

$$B = (2x + 7) \times (-10x + 7)$$

$$C = -(6x + 7) \times (9x + 5) + (9x + 5) \times (-4x + 10)$$

$$C = (9x + 5) \times (-6x + 7) - 4x + 10$$

$$C = (9x + 5) \times (-6x - 7 - 4x + 10)$$

$$C = (9x + 5) \times (-6x - 4x - 7 + 10)$$

$$C = (9x + 5) \times (-10x + 3)$$

$$D = -49x^2 + 1$$

$$D = (\sqrt{1})^2 - (\sqrt{49}x)^2$$

$$D = (\sqrt{1}\sqrt{49}x) \times (\sqrt{1} - (\sqrt{49}x))$$

$$D = (\sqrt{49}x + \sqrt{1}) \times (1 - 7x)$$

$$D = (\sqrt{49}x + \sqrt{1}) \times (-7x + 1)$$

$$D = (7x + 1) \times (-7x + 1)$$

$$E = 9x + 2 + (9x + 2) \times (6x + 2)$$

$$E = (9x + 2) \times 1 + (9x + 2) \times (6x + 2)$$

$$E = (9x + 2) \times (1 + 6x + 2)$$

$$E = (9x + 2) \times (6x + 1 + 2)$$

$$E = (9x + 2) \times (6x + 3)$$

$$F = (-10x - 6)^2 + (-4x + 3) \times (-10x - 6)$$

$$F = (-10x - 6) \times (-10x - 6) + (-4x + 3) \times (-10x - 6)$$

$$F = (-10x - 6) \times (-10x - 6 - 4x + 3)$$

$$F = (-10x - 6) \times (-10x - 4x - 6 + 3)$$

$$F = (-10x - 6) \times (-14x - 3)$$

Corrigé de l'exercice 6

Factoriser chacune des expressions littérales suivantes :

$$A = -64x^2 + 36$$

$$A = (\sqrt{36})^2 - (\sqrt{64}x)^2$$

$$A = (\sqrt{36}\sqrt{64}x) \times (\sqrt{36} - (\sqrt{64}x))$$

$$A = (\sqrt{64}x + \sqrt{36}) \times (6 - 8x)$$

$$A = (\sqrt{64}x + \sqrt{36}) \times (-8x + 6)$$

$$A = (8x + 6) \times (-8x + 6)$$

$$B = (-9x + 4)^2 - 64x^2$$

$$B = (-9x + 4)^2 - (8x)^2$$

$$B = (-9x + 4 + 8x) \times (-9x + 4 - 8x)$$

$$B = (-9x + 8x + 4) \times (-9x - 8x + 4)$$

$$B = (-x + 4) \times (-17x + 4)$$

$$C = 25x^2 + 20x + 4$$

$$C = (5x)^2 + 2 \times 5x \times 2 + 2^2$$

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

$$D = (-3x + 2) \times (8x + 10) + (-3x + 2) \times (8x - 6)$$

$$D = (-3x + 2) \times (8x + 10 + 8x - 6)$$

$$D = (-3x + 2) \times (8x + 8x + 10 - 6)$$

$$D = (-3x + 2) \times (16x + 4)$$

$$E = 4x - 4 + (6x + 2) \times (4x - 4)$$

$$E = (4x - 4) \times 1 + (6x + 2) \times (4x - 4)$$

$$E = (4x - 4) \times (1 + 6x + 2)$$

$$E = (4x - 4) \times (6x + 1 + 2)$$

$$E = (4x - 4) \times (6x + 3)$$

$$F = (-4x + 9)^2 - (-10x + 7) \times (-4x + 9)$$

$$F = (-4x + 9) \times (-4x + 9) - (-10x + 7) \times (-4x + 9)$$

$$F = (-4x + 9) \times (-4x + 9 - (-10x + 7))$$

$$F = (-4x + 9) \times (-4x + 9 + 10x - 7)$$

$$F = (-4x + 9) \times (-4x + 10x + 9 - 7)$$

$$F = (-4x + 9) \times (6x + 2)$$