Corrigé de l'exercice 1

Factoriser chacune des expressions littérales suivantes :

$A = 9\,x^2 - 81$
$A = \left(\sqrt{9}\,x\right)^2 - \left(\sqrt{81}\right)^2$
$A = \left(\sqrt{9}\,x\sqrt{81}\right) \times \left(\sqrt{9}\,x - \left(\sqrt{81}\right)\right)$

$$\boxed{A = (3\,x + 9) \times (3\,x - 9)}$$

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

$$\boxed{B = (2\,x - 2) \times (4\,x - 16)}$$

$C = 100\,x^2 + 100\,x + 25$
$C = (10\,x)^2 + 2 \times 10\,x \times 5 + 5^2$

$$\boxed{C = (10\,x + 5)^2}$$

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

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

$$\boxed{D = (-5\,x + 3) \times (-5\,x - 17)}$$

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

$$\boxed{E = (5\,x + 1) \times (14\,x + 11)}$$

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

$$\boxed{F = (5\,x - 2) \times (7\,x - 6)}$$

Corrigé de l'exercice 2

Factoriser chacune des expressions littérales suivantes :

$A = 36\,x^2 - 1$
$A = \left(\sqrt{36}\,x\right)^2 - \left(\sqrt{1}\right)^2$
$A = \left(\sqrt{36}\,x\sqrt{1}\right) \times \left(\sqrt{36}\,x - \left(\sqrt{1}\right)\right)$

$$\boxed{A = (6\,x + 1) \times (6\,x - 1)}$$

$B = (9\,x + 4)^2 - 49\,x^2$
$B = (9\,x + 4)^2 - (7\,x)^2$
$B = (9\,x + 4 + 7\,x) \times (9\,x + 4 - 7\,x)$
$B = (9\,x + 7\,x + 4) \times (9\,x - 7\,x + 4)$

$$\boxed{B = (16\,x + 4) \times (2\,x + 4)}$$

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

$$\boxed{C = (5\,x + 10) \times (-4\,x - 3)}$$

$D = 9\,x^2 + 18\,x + 9$
$D = (3\,x)^2 + 2 \times 3\,x \times 3 + 3^2$

$$\boxed{D = (3\,x + 3)^2}$$

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

$$\boxed{E = (5\,x + 10) \times (9\,x - 3)}$$

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

$$\boxed{F = (7\,x + 5) \times (3\,x + 10)}$$

Corrigé de l'exercice 3

Factoriser chacune des expressions littérales suivantes :

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

$$\boxed{A = (-9\,x + 9) \times (11\,x - 9)}$$

$B = 25\,x^2 - 36$
$B = \left(\sqrt{25}\,x\right)^2 - \left(\sqrt{36}\right)^2$
$B = \left(\sqrt{25}\,x\sqrt{36}\right) \times \left(\sqrt{25}\,x - \left(\sqrt{36}\right)\right)$

$$\boxed{B = (5\,x + 6) \times (5\,x - 6)}$$

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

$$\boxed{C = (4\,x - 7) \times (4\,x - 3)}$$

$D = 100\,x^2 + 140\,x + 49$
$D = (10\,x)^2 + 2 \times 10\,x \times 7 + 7^2$

$$\boxed{D = (10\,x + 7)^2}$$

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

$$\boxed{E = (x - 5) \times (-6\,x + 8)}$$

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

$$\boxed{F = (4\,x + 7) \times (x + 12)}$$

Corrigé de l'exercice 4

Factoriser chacune des expressions littérales suivantes :

$A = 81\,x^2 - 9$
$A = \left(\sqrt{81}\,x\right)^2 - \left(\sqrt{9}\right)^2$
$A = \left(\sqrt{81}\,x\sqrt{9}\right) \times \left(\sqrt{81}\,x - \left(\sqrt{9}\right)\right)$

$$\boxed{A = (9\,x + 3) \times (9\,x - 3)}$$

$B = 81\,x^2 + 126\,x + 49$
$B = (9\,x)^2 + 2 \times 9\,x \times 7 + 7^2$

$$\boxed{B = (9\,x + 7)^2}$$

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

$$\boxed{C = (9\,x - 5) \times (-9\,x + 7)}$$

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

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

$$\boxed{D = (9\,x + 6) \times (14\,x + 14)}$$

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

$$\boxed{E = (3\,x + 10) \times (5\,x - 5)}$$

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

$$\boxed{F = (-10\,x + 3) \times 5}$$

Corrigé de l'exercice 5

Factoriser chacune des expressions littérales suivantes :

$A = 16\,x^2 + 8\,x + 1$
$A = (4\,x)^2 + 2 \times 4\,x \times 1 + 1^2$

$$\boxed{A = (4\,x + 1)^2}$$

$B = -36\,x^2 + (-4\,x + 7)^2$
$B = -(6\,x)^2 + (-4\,x + 7)^2$
$B = (-4\,x + 7 + 6\,x) \times (-4\,x + 7 - 6\,x)$
$B = (-4\,x + 6\,x + 7) \times (-4\,x - 6\,x + 7)$

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

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

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

$$D = -49\,x^2 + 1$$
$$D = \left(\sqrt{1}\right)^2 - \left(\sqrt{49}\,x\right)^2$$
$$D = \left(\sqrt{1}\sqrt{49}\,x\right) \times \left(\sqrt{1} - \left(\sqrt{49}\,x\right)\right)$$
$$D = \left(\sqrt{49}\,x + \sqrt{1}\right) \times (1 - 7\,x)$$
$$D = \left(\sqrt{49}\,x + \sqrt{1}\right) \times (-7\,x + 1)$$

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

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

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

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

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

Corrigé de l'exercice 6

Factoriser chacune des expressions littérales suivantes :

$$A = -64\,x^2 + 36$$
$$A = \left(\sqrt{36}\right)^2 - \left(\sqrt{64}\,x\right)^2$$
$$A = \left(\sqrt{36}\sqrt{64}\,x\right) \times \left(\sqrt{36} - \left(\sqrt{64}\,x\right)\right)$$
$$A = \left(\sqrt{64}\,x + \sqrt{36}\right) \times (6 - 8\,x)$$
$$A = \left(\sqrt{64}\,x + \sqrt{36}\right) \times (-8\,x + 6)$$

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

$$B = (-9\,x + 4)^2 - 64\,x^2$$
$$B = (-9\,x + 4)^2 - (8\,x)^2$$
$$B = (-9\,x + 4 + 8\,x) \times (-9\,x + 4 - 8\,x)$$
$$B = (-9\,x + 8\,x + 4) \times (-9\,x - 8\,x + 4)$$

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

$$C = 25\,x^2 + 20\,x + 4$$
$$C = (5\,x)^2 + 2 \times 5\,x \times 2 + 2^2$$

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

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

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

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

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

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

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