Corrigé de l'exercice 1

Factoriser chacune des expressions littérales suivantes :

$A = 9x^2 - 42x + 49$
$A = (3x)^2 - 2 \times 3x \times 7 + 7^2$
$\boxed{A = (3x - 7)^2}$

$B = (6x + 5) \times (-7x + 2) + (5x - 5) \times (6x + 5)$
$B = (6x + 5) \times (-7x + 2 + 5x - 5)$
$B = (6x + 5) \times (-7x + 5x + 2 - 5)$
$\boxed{B = (6x + 5) \times (-2x - 3)}$

$C = 100x^2 - 100$
$C = \left(\sqrt{100}\,x\right)^2 - \sqrt{100}^2$
$C = \left(\sqrt{100}\,x + \sqrt{100}\right) \times \left(\sqrt{100}\,x - \sqrt{100}\right)$
$\boxed{C = (10x + 10) \times (10x - 10)}$

$D = (x - 7)^2 - 16$
$D = (x - 7)^2 - 4^2$
$D = (x - 7 + 4) \times (x - 7 - 4)$
$\boxed{D = (x - 3) \times (x - 11)}$

$E = (10x + 2) \times (10x + 8) - (10x + 2)$
$E = (10x + 2) \times (10x + 8) - (10x + 2) \times 1$
$E = (10x + 2) \times (10x + 8 - 1)$
$\boxed{E = (10x + 2) \times (10x + 7)}$

$F = (2x - 5) \times (8x + 10) + (8x + 10)^2$
$F = (2x - 5) \times (8x + 10) + (8x + 10) \times (8x + 10)$
$F = (8x + 10) \times (2x - 5 + 8x + 10)$
$F = (8x + 10) \times (2x + 8x - 5 + 10)$
$\boxed{F = (8x + 10) \times (10x + 5)}$

Corrigé de l'exercice 2

Factoriser chacune des expressions littérales suivantes :

$A = x^2 - 8x + 16$
$A = x^2 - 2 \times x \times 4 + 4^2$
$\boxed{A = (x - 4)^2}$

$B = -(x + 9)^2 + 16$
$B = -(x + 9)^2 + 4^2$
$B = (4 + x + 9) \times (4 - (x + 9))$
$B = (x + 4 + 9) \times (4 - x - 9)$
$B = (x + 4 + 9) \times (-x + 4 - 9)$
$\boxed{B = (x + 13) \times (-x - 5)}$

$C = (x + 5) \times (3x + 10) + (x + 5) \times (4x + 10)$
$C = (x + 5) \times (3x + 10 + 4x + 10)$
$C = (x + 5) \times (3x + 4x + 10 + 10)$
$\boxed{C = (x + 5) \times (7x + 20)}$

$D = 81x^2 - 36$
$D = \left(\sqrt{81}\,x\right)^2 - \sqrt{36}^2$
$D = \left(\sqrt{81}\,x + \sqrt{36}\right) \times \left(\sqrt{81}\,x - \sqrt{36}\right)$
$\boxed{D = (9x + 6) \times (9x - 6)}$

$E = (3x - 4)^2 + (3x - 4) \times (6x + 9)$
$E = (3x - 4) \times (3x - 4) + (3x - 4) \times (6x + 9)$
$E = (3x - 4) \times (3x - 4 + 6x + 9)$
$E = (3x - 4) \times (3x + 6x - 4 + 9)$
$\boxed{E = (3x - 4) \times (9x + 5)}$

$F = -(7x + 5) \times (4x + 1) + 7x + 5$
$F = -(7x + 5) \times (4x + 1) + (7x + 5) \times 1$
$F = (7x + 5) \times (-(4x + 1) + 1)$
$F = (7x + 5) \times (-4x - 1 + 1)$
$\boxed{F = (7x + 5) \times (-4x)}$

Corrigé de l'exercice 3

Factoriser chacune des expressions littérales suivantes :

$A = (-5x - 7) \times (10x - 10) + (-5x - 7) \times (-8x + 6)$
$A = (-5x - 7) \times (10x - 10 - 8x + 6)$
$A = (-5x - 7) \times (10x - 8x - 10 + 6)$
$\boxed{A = (-5x - 7) \times (2x - 4)}$

$B = x^2 + 16x + 64$
$B = x^2 + 2 \times x \times 8 + 8^2$
$\boxed{B = (x + 8)^2}$

$C = (x+8)^2 - 49x^2$
$C = (x+8)^2 - (7x)^2$
$C = (x+8+7x) \times (x+8-7x)$
$C = (x+7x+8) \times (x-7x+8)$
$\boxed{C = (8x+8) \times (-6x+8)}$

$D = 4x^2 - 16$
$D = \left(\sqrt{4}x\right)^2 - \sqrt{16}^2$
$D = \left(\sqrt{4}x + \sqrt{16}\right) \times \left(\sqrt{4}x - \sqrt{16}\right)$
$\boxed{D = (2x+4) \times (2x-4)}$

$E = -(6x-3) + (2x-3) \times (6x-3)$
$E = -(6x-3) \times 1 + (2x-3) \times (6x-3)$
$E = (6x-3) \times (-1+2x-3)$
$E = (6x-3) \times (2x-1-3)$
$\boxed{E = (6x-3) \times (2x-4)}$

$F = (-9x+10) \times (7x-1) + (-9x+10)^2$
$F = (-9x+10) \times (7x-1) + (-9x+10) \times (-9x+10)$
$F = (-9x+10) \times (7x-1-9x+10)$
$F = (-9x+10) \times (7x-9x-1+10)$
$\boxed{F = (-9x+10) \times (-2x+9)}$

Corrigé de l'exercice 4

Factoriser chacune des expressions littérales suivantes :

$A = (9x+8) \times (x-2) + (5x+1) \times (9x+8)$
$A = (9x+8) \times (x-2+5x+1)$
$A = (9x+8) \times (x+5x-2+1)$
$\boxed{A = (9x+8) \times (6x-1)}$

$B = 100x^2 - 140x + 49$
$B = (10x)^2 - 2 \times 10x \times 7 + 7^2$
$\boxed{B = (10x-7)^2}$

$C = (-x+8)^2 - 64$
$C = (-x+8)^2 - 8^2$
$C = (-x+8+8) \times (-x+8-8)$
$\boxed{C = (-x+16) \times (-x)}$

$D = -25x^2 + 25$
$D = \sqrt{25}^2 - \left(\sqrt{25}x\right)^2$
$D = \left(\sqrt{25} + \sqrt{25}x\right) \times \left(\sqrt{25} - \sqrt{25}x\right)$
$D = \left(\sqrt{25}x + \sqrt{25}\right) \times (5-5x)$
$D = \left(\sqrt{25}x + \sqrt{25}\right) \times (-5x+5)$
$\boxed{D = (5x+5) \times (-5x+5)}$

$E = -(7x-1) \times (x+5) + x + 5$
$E = -(7x-1) \times (x+5) + (x+5) \times 1$
$E = (x+5) \times (-(7x-1)+1)$
$E = (x+5) \times (-7x+1+1)$
$\boxed{E = (x+5) \times (-7x+2)}$

$F = (9x+2) \times (10x+8) + (9x+2)^2$
$F = (9x+2) \times (10x+8) + (9x+2) \times (9x+2)$
$F = (9x+2) \times (10x+8+9x+2)$
$F = (9x+2) \times (10x+9x+8+2)$
$\boxed{F = (9x+2) \times (19x+10)}$

Corrigé de l'exercice 5

Factoriser chacune des expressions littérales suivantes :

$A = (5x+3) \times (3x+10) + (-x+8) \times (5x+3)$
$A = (5x+3) \times (3x+10-x+8)$
$A = (5x+3) \times (3x-x+10+8)$
$\boxed{A = (5x+3) \times (2x+18)}$

$B = (6x-8)^2 - 64x^2$
$B = (6x-8)^2 - (8x)^2$
$B = (6x-8+8x) \times (6x-8-8x)$
$B = (6x+8x-8) \times (6x-8x-8)$
$\boxed{B = (14x-8) \times (-2x-8)}$

$C = 4x^2 - 8x + 4$
$C = (2x)^2 - 2 \times 2x \times 2 + 2^2$
$\boxed{C = (2x-2)^2}$

$D = 49x^2 - 100$
$D = \left(\sqrt{49}x\right)^2 - \sqrt{100}^2$
$D = \left(\sqrt{49}x + \sqrt{100}\right) \times \left(\sqrt{49}x - \sqrt{100}\right)$
$\boxed{D = (7x+10) \times (7x-10)}$

$E = 4x + 1 + (4x+1) \times (5x+3)$

$E = (4\,x + 1) \times 1 + (4\,x + 1) \times (5\,x + 3)$
$E = (4\,x + 1) \times (1 + 5\,x + 3)$
$E = (4\,x + 1) \times (5\,x + 1 + 3)$
$\boxed{E = (4\,x + 1) \times (5\,x + 4)}$

$F = (x + 4) \times (8\,x + 2) - (8\,x + 2)^2$
$F = (x + 4) \times (8\,x + 2) - (8\,x + 2) \times (8\,x + 2)$
$F = (8\,x + 2) \times (x + 4 - (8\,x + 2))$
$F = (8\,x + 2) \times (x + 4 - 8\,x - 2)$
$F = (8\,x + 2) \times (x - 8\,x + 4 - 2)$
$\boxed{F = (8\,x + 2) \times (-7\,x + 2)}$

Corrigé de l'exercice 6

Factoriser chacune des expressions littérales suivantes :

$A = (5\,x + 10) \times (x + 4) + (-7\,x - 9) \times (x + 4)$
$A = (x + 4) \times (5\,x + 10 - 7\,x - 9)$
$A = (x + 4) \times (5\,x - 7\,x + 10 - 9)$
$\boxed{A = (x + 4) \times (-2\,x + 1)}$

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

$C = x^2 - (5\,x - 8)^2$
$C = (x + 5\,x - 8) \times (x - (5\,x - 8))$
$C = (6\,x - 8) \times (x - 5\,x + 8)$
$\boxed{C = (6\,x - 8) \times (-4\,x + 8)}$

$D = -64\,x^2 + 9$
$D = \sqrt{9}^2 - \left(\sqrt{64}\,x\right)^2$
$D = \left(\sqrt{9} + \sqrt{64}\,x\right) \times \left(\sqrt{9} - \sqrt{64}\,x\right)$
$D = \left(\sqrt{64}\,x + \sqrt{9}\right) \times (3 - 8\,x)$
$D = \left(\sqrt{64}\,x + \sqrt{9}\right) \times (-8\,x + 3)$
$\boxed{D = (8\,x + 3) \times (-8\,x + 3)}$

$E = (6\,x + 10) \times (4\,x + 6) - (6\,x + 10)^2$
$E = (6\,x + 10) \times (4\,x + 6) - (6\,x + 10) \times (6\,x + 10)$
$E = (6\,x + 10) \times (4\,x + 6 - (6\,x + 10))$
$E = (6\,x + 10) \times (4\,x + 6 - 6\,x - 10)$
$E = (6\,x + 10) \times (4\,x - 6\,x + 6 - 10)$
$\boxed{E = (6\,x + 10) \times (-2\,x - 4)}$

$F = (9\,x + 10) \times (9\,x + 2) + 9\,x + 2$
$F = (9\,x + 10) \times (9\,x + 2) + (9\,x + 2) \times 1$
$F = (9\,x + 2) \times (9\,x + 10 + 1)$
$\boxed{F = (9\,x + 2) \times (9\,x + 11)}$