Exercice 1

Développer et réduire les expressions suivantes.

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

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

$C = (8\,x - 5)^2$

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

$E = -(10\,x + 2)^2 + (7\,x + 7)\,(7\,x - 7)$

$F = (9\,x - 5)\,(9\,x + 10) + (5\,x - 7)^2$

Exercice 2

Développer et réduire les expressions suivantes.

$A = (8\,x + 3)\,(7\,x - 7)$

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

$C = (7\,x + 2)^2$

$D = (8\,x - 6)\,(8\,x + 6)$

$E = -(2\,x - 4)\,(2\,x + 4) + (10\,x + 9)\,(9\,x + 9)$

$F = -(9\,x - 2)^2 + (4\,x + 3)^2$

Exercice 3

Développer et réduire les expressions suivantes.

$A = (4\,x + 4)\,(4\,x - 4)$

$B = (2\,x + 8)^2$

$C = (8\,x + 3)\,(9\,x - 2)$

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

$E = (9\,x + 7)^2 - (6\,x - 7)^2$

$F = -(-4\,x + 10)\,(-8\,x - 4) - (10\,x - 3)\,(10\,x + 3)$

Exercice 4

Développer et réduire les expressions suivantes.

$A = (3\,x + 6)^2$

$B = (-10\,x - 8)\,(7\,x + 1)$

$C = (8\,x + 5)\,(8\,x - 5)$

$D = (7\,x - 9)^2$

$E = (3\,x + 10)^2 + (-7\,x + 1)\,(8\,x + 10)$

$F = -(3\,x - 6)^2 - (9\,x + 6)\,(9\,x - 6)$

Exercice 5

Développer et réduire les expressions suivantes.

$A = (5\,x + 7)^2$

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

$C = (10\,x - 8)^2$

$D = (8\,x + 7)\,(8\,x - 7)$

$E = (4\,x + 6)^2 - (7\,x - 10)\,(7\,x + 10)$

$F = -(10\,x - 1)^2 + (-8\,x + 4)\,(x + 8)$

Exercice 6

Factoriser les expressions suivantes.

$A = x^2 - 9 - (9\,x + 4)\,(x - 3)$

$B = (x + 1)\,(10\,x - 7) + (x + 1)^2$

$C = (10\,x - 4)^2 - 1$

$D = 64\,x^2 - 4$

$E = (-x + 8) - (-x + 8)\,(10\,x + 2)$

$F = -(5\,x + 9)\,(4\,x - 3) + (5\,x + 9)\,(-10\,x - 6)$

Exercice 7

Factoriser les expressions suivantes.

$A = (-6\,x + 4)^2 - 36$

$B = -(x + 6)\,(10\,x + 5) + 100\,x^2 - 25$

$C = (10\,x + 7)\,(2\,x + 2) - (10\,x + 7)\,(-2\,x + 9)$

$D = -(-8\,x - 4)\,(4\,x + 7) + (4\,x + 7)^2$

$E = 64\,x^2 - 4$

$F = (3\,x - 9)\,(9\,x + 1) + (3\,x - 9)$

Exercice 8

Factoriser les expressions suivantes.

$A = 25\,x^2 - 100$

$B = -(-6\,x - 6)\,(-9\,x - 9) + (-6\,x - 6)^2$

$C = (-10\,x + 8)^2 - 16$

$D = -(9\,x - 4)\,(x - 10) - (x - 10)$

$E = -(3\,x - 1)\,(3\,x + 6) - (3\,x + 6)\,(-7\,x + 6)$

$F = (8\,x + 2)\,(-x + 3) + 64\,x^2 - 4$

Exercice 9

Factoriser les expressions suivantes.

$A = (-10\,x + 10)\,(6\,x + 6) + (6\,x + 6)^2$

$B = (-5\,x + 10)\,(5\,x + 4) + (-5\,x + 10)$

$C = (10\,x - 6)^2 - 1$

$D = x^2 - 49$

$E = 25\,x^2 - 100 - (5\,x - 10)\,(5\,x - 2)$

$F = -(9\,x + 9)\,(-9\,x - 8) - (9\,x + 9)\,(-2\,x - 1)$

Exercice 10

Factoriser les expressions suivantes.

$A = (x - 9)^2 - 25$

$B = -(-9\,x + 3)\,(-8\,x + 8) - (-9\,x + 3)\,(-10\,x - 3)$

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

$D = 9\,x^2 - 1$

$E = (9\,x - 10)\,(10\,x - 10) + 100\,x^2 - 100$

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

Corrigé de l'exercice 1

Développer et réduire les expressions suivantes.

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

$A = -18\,x^2 + (-81\,x) + 20\,x + 90$

$$\boxed{A = -18\,x^2 - 61\,x + 90}$$

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

$B = (6\,x)^2 - 5^2$

$$\boxed{B = 36\,x^2 - 25}$$

$C = (8\,x - 5)^2$

$C = (8\,x)^2 - 2 \times 8\,x \times 5 + 5^2$

$$\boxed{C = 64\,x^2 - 80\,x + 25}$$

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

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

$$\boxed{D = 49\,x^2 + 70\,x + 25}$$

$E = -(10\,x + 2)^2 + (7\,x + 7)\,(7\,x - 7)$

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

$E = -(100\,x^2 + 40\,x + 4) + 49\,x^2 - 49$

$E = -100\,x^2 - 40\,x - 4 + 49\,x^2 - 49$

$$\boxed{E = -51\,x^2 - 40\,x - 53}$$

$F = (9\,x - 5)\,(9\,x + 10) + (5\,x - 7)^2$

$F = 81\,x^2 + 90\,x + (-45\,x) + (-50) + (5\,x)^2 - 2 \times 5\,x \times 7 + 7^2$

$F = 81\,x^2 + 45\,x - 50 + 25\,x^2 - 70\,x + 49$

$$\boxed{F = 106\,x^2 - 25\,x - 1}$$

Corrigé de l'exercice 2

Développer et réduire les expressions suivantes.

$A = (8\,x + 3)\,(7\,x - 7)$

$A = 56\,x^2 + (-56\,x) + 21\,x + (-21)$

$$\boxed{A = 56\,x^2 - 35\,x - 21}$$

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

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

$$\boxed{B = 49\,x^2 - 84\,x + 36}$$

$C = (7\,x + 2)^2$

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

$$\boxed{C = 49\,x^2 + 28\,x + 4}$$

$D = (8\,x - 6)\,(8\,x + 6)$

$D = (8\,x)^2 - 6^2$

$$\boxed{D = 64\,x^2 - 36}$$

$E = -(2\,x - 4)\,(2\,x + 4) + (10\,x + 9)\,(9\,x + 9)$

$E = -((2\,x)^2 - 4^2) + 90\,x^2 + 90\,x + 81\,x + 81$

$E = -(4\,x^2 - 16) + 90\,x^2 + 171\,x + 81$

$E = -4\,x^2 + 16 + 90\,x^2 + 171\,x + 81$

$$\boxed{E = 86\,x^2 + 171\,x + 97}$$

$F = -(9\,x - 2)^2 + (4\,x + 3)^2$

$F = -((9\,x)^2 - 2 \times 9\,x \times 2 + 2^2) + (4\,x)^2 + 2 \times 4\,x \times 3 + 3^2$

$F = -(81\,x^2 - 36\,x + 4) + 16\,x^2 + 24\,x + 9$

$F = -81\,x^2 + 36\,x - 4 + 16\,x^2 + 24\,x + 9$

$$\boxed{F = -65\,x^2 + 60\,x + 5}$$

Corrigé de l'exercice 3

Développer et réduire les expressions suivantes.

$A = (4\,x + 4)\,(4\,x - 4)$

$A = (4\,x)^2 - 4^2$

$$\boxed{A = 16\,x^2 - 16}$$

$B = (2\,x + 8)^2$

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

$$\boxed{B = 4\,x^2 + 32\,x + 64}$$

$C = (8\,x + 3)\,(9\,x - 2)$

$C = 72\,x^2 + (-16\,x) + 27\,x + (-6)$

$$\boxed{C = 72\,x^2 + 11\,x - 6}$$

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

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

$$\boxed{D = 25\,x^2 - 20\,x + 4}$$

$E = (9\,x + 7)^2 - (6\,x - 7)^2$

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

$E = 81\,x^2 + 126\,x + 49 - (36\,x^2 - 84\,x + 49)$

$E = 81\,x^2 + 126\,x + 49 - 36\,x^2 + 84\,x - 49$

$$\boxed{E = 45\,x^2 + 210\,x}$$

$F = -(-4\,x + 10)\,(-8\,x - 4) - (10\,x - 3)\,(10\,x + 3)$

$F = -(32\,x^2 + 16\,x + (-80\,x) + (-40)) - ((10\,x)^2 - 3^2)$

$F = -(32\,x^2 - 64\,x - 40) - (100\,x^2 - 9)$

$F = -32\,x^2 + 64\,x + 40 - 100\,x^2 + 9$

$$\boxed{F = -132\,x^2 + 64\,x + 49}$$

Corrigé de l'exercice 4

Développer et réduire les expressions suivantes.

$A = (3\,x + 6)^2$

$A = (3\,x)^2 + 2 \times 3\,x \times 6 + 6^2$

$$\boxed{A = 9\,x^2 + 36\,x + 36}$$

$B = (-10\,x - 8)\,(7\,x + 1)$

$B = -70\,x^2 + (-10\,x) + (-56\,x) + (-8)$

$$\boxed{B = -70\,x^2 - 66\,x - 8}$$

$C = (8\,x + 5)\,(8\,x - 5)$

$C = (8\,x)^2 - 5^2$

$$\boxed{C = 64\,x^2 - 25}$$

$D = (7\,x - 9)^2$

$D = (7\,x)^2 - 2 \times 7\,x \times 9 + 9^2$

$$\boxed{D = 49\,x^2 - 126\,x + 81}$$

$E = (3\,x + 10)^2 + (-7\,x + 1)\,(8\,x + 10)$

$E = (3\,x)^2 + 2 \times 3\,x \times 10 + 10^2 + -56\,x^2 + (-70\,x) + 8\,x + 10$

$E = 9\,x^2 + 60\,x + 100 - 56\,x^2 - 62\,x + 10$

$$\boxed{E = -47\,x^2 - 2\,x + 110}$$

$F = -(3\,x - 6)^2 - (9\,x + 6)\,(9\,x - 6)$

$F = -((3\,x)^2 - 2 \times 3\,x \times 6 + 6^2) - ((9\,x)^2 - 6^2)$

$F = -(9\,x^2 - 36\,x + 36) - (81\,x^2 - 36)$

$F = -9\,x^2 + 36\,x - 36 - 81\,x^2 + 36$

$$\boxed{F = -90\,x^2 + 36\,x}$$

Corrigé de l'exercice 5

Développer et réduire les expressions suivantes.

$A = (5\,x + 7)^2$

$A = (5\,x)^2 + 2 \times 5\,x \times 7 + 7^2$

$$\boxed{A = 25\,x^2 + 70\,x + 49}$$

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

$B = 12\,x^2 + (-24\,x) + 14\,x + (-28)$

$$\boxed{B = 12\,x^2 - 10\,x - 28}$$

$C = (10\,x - 8)^2$

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

$$\boxed{C = 100\,x^2 - 160\,x + 64}$$

$D = (8\,x + 7)\,(8\,x - 7)$

$D = (8\,x)^2 - 7^2$

$$\boxed{D = 64\,x^2 - 49}$$

$E = (4\,x + 6)^2 - (7\,x - 10)\,(7\,x + 10)$

$E = (4\,x)^2 + 2 \times 4\,x \times 6 + 6^2 - ((7\,x)^2 - 10^2)$

$E = 16\,x^2 + 48\,x + 36 - (49\,x^2 - 100)$

$E = 16\,x^2 + 48\,x + 36 - 49\,x^2 + 100$

$$E = -33\,x^2 + 48\,x + 136$$

$F = -(10\,x - 1)^2 + (-8\,x + 4)\,(x + 8)$

$F = -\big((10\,x)^2 - 2 \times 10\,x \times 1 + 1^2\big) + \big(-8\,x^2\big) + (-64\,x) + 4\,x + 32$

$F = -(100\,x^2 - 20\,x + 1) - 8\,x^2 - 60\,x + 32$

$F = -100\,x^2 + 20\,x - 1 - 8\,x^2 - 60\,x + 32$

$$F = -108\,x^2 - 40\,x + 31$$

Corrigé de l'exercice 6

Factoriser les expressions suivantes.

$A = x^2 - 9 - (9\,x + 4)\,(x - 3)$

$A = x^2 - 3^2 - (9\,x + 4)\,(x - 3)$

$A = (x - 3)\,(x + 3) - (9\,x + 4)\,(x - 3)$

$A = (x - 3)\,\big(x + 3 - (9\,x + 4)\big)$

$A = (x - 3)\,(x + 3 - 9\,x - 4)$

$$A = (x - 3)\,(-8\,x - 1)$$

$B = (x + 1)\,(10\,x - 7) + (x + 1)^2$

$B = (x + 1)\,(10\,x - 7 + x + 1)$

$$B = (x + 1)\,(11\,x - 6)$$

$C = (10\,x - 4)^2 - 1$

$C = (10\,x - 4)^2 - 1^2$

$C = (10\,x - 4 + 1)\,(10\,x - 4 - 1)$

$C =$

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

$D = 64\,x^2 - 4$

$D = (8\,x)^2 - 2^2$

$$D = (8\,x + 2)\,(8\,x - 2)$$

$E = (-x + 8) - (-x + 8)\,(10\,x + 2)$

$E = (-x + 8) \times 1 - (-x + 8)\,(10\,x + 2)$

$E = (-x + 8)\,\big(1 - (10\,x + 2)\big)$

$E = (-x + 8)\,(1 - 10\,x - 2)$

$$E = (-x + 8)\,(-10\,x - 1)$$

$F = -(5\,x + 9)\,(4\,x - 3) + (5\,x + 9)\,(-10\,x - 6)$

$F = (5\,x + 9)\,\big(-(4\,x - 3) - 10\,x - 6\big)$

$F = (5\,x + 9)\,(-4\,x + 3 - 10\,x - 6)$

$$F = (5\,x + 9)\,(-14\,x - 3)$$

Corrigé de l'exercice 7

Factoriser les expressions suivantes.

$A = (-6\,x + 4)^2 - 36$

$A = (-6\,x + 4)^2 - 6^2$

$A = (-6\,x + 4 + 6)\,(-6\,x + 4 - 6)$

$A =$

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

$B = -(x + 6)\,(10\,x + 5) + 100\,x^2 - 25$

$B = -(x + 6)\,(10\,x + 5) + (10\,x)^2 - 5^2$

$B = -(x + 6)(10x + 5) + (10x + 5)(10x - 5)$

$B = (10x + 5)(-(x + 6) + 10x - 5)$

$B = (10x + 5)(-x - 6 + 10x - 5)$

$$\boxed{B = (10x + 5)(9x - 11)}$$

$C = (10x + 7)(2x + 2) - (10x + 7)(-2x + 9)$

$C = (10x + 7)(2x + 2 - (-2x + 9))$

$C = (10x + 7)(2x + 2 + 2x - 9)$

$$\boxed{C = (10x + 7)(4x - 7)}$$

$D = -(-8x - 4)(4x + 7) + (4x + 7)^2$

$D = (4x + 7)(-(-8x - 4) + 4x + 7)$

$D = (4x + 7)(8x + 4 + 4x + 7)$

$$\boxed{D = (4x + 7)(12x + 11)}$$

$E = 64x^2 - 4$

$E = (8x)^2 - 2^2$

$$\boxed{E = (8x + 2)(8x - 2)}$$

$F = (3x - 9)(9x + 1) + (3x - 9)$

$F = (3x - 9)(9x + 1) + (3x - 9) \times 1$

$F = (3x - 9)(9x + 1 + 1)$

$$\boxed{F = (3x - 9)(9x + 2)}$$

Corrigé de l'exercice 8

Factoriser les expressions suivantes.

$A = 25x^2 - 100$

$A = (5x)^2 - 10^2$

$$\boxed{A = (5x + 10)(5x - 10)}$$

$B = -(-6x - 6)(-9x - 9) + (-6x - 6)^2$

$B = (-6x - 6)(-(-9x - 9) - 6x - 6)$

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

$$\boxed{B = (-6x - 6)(3x + 3)}$$

$C = (-10x + 8)^2 - 16$

$C = (-10x + 8)^2 - 4^2$

$C = (-10x + 8 + 4)(-10x + 8 - 4)$

$C =$

$$\boxed{C = (-10x + 12)(-10x + 4)}$$

$D = -(9x - 4)(x - 10) - (x - 10)$

$D = -(9x - 4)(x - 10) - (x - 10) \times 1$

$D = (x - 10)(-(9x - 4) - 1)$

$D = (x - 10)(-9x + 4 - 1)$

$$\boxed{D = (x - 10)(-9x + 3)}$$

$E = -(3x - 1)(3x + 6) - (3x + 6)(-7x + 6)$

$E = (3x + 6)(-(3x - 1) - (-7x + 6))$

$E = (3x + 6)(-3x + 1 + 7x - 6)$

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

$F = (8x + 2)(-x + 3) + 64x^2 - 4$

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

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

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

$$\boxed{F = (8x + 2)(7x + 1)}$$

Corrigé de l'exercice 9

Factoriser les expressions suivantes.

$A = (-10\,x + 10)\,(6\,x + 6) + (6\,x + 6)^2$

$A = (6\,x + 6)\,(-10\,x + 10 + 6\,x + 6)$

$\boxed{A = (6\,x + 6)\,(-4\,x + 16)}$

$B = (-5\,x + 10)\,(5\,x + 4) + (-5\,x + 10)$

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

$B = (-5\,x + 10)\,(5\,x + 4 + 1)$

$\boxed{B = (-5\,x + 10)\,(5\,x + 5)}$

$C = (10\,x - 6)^2 - 1$

$C = (10\,x - 6)^2 - 1^2$

$C = (10\,x - 6 + 1)\,(10\,x - 6 - 1)$

$C =$

$\boxed{C = (10\,x - 5)\,(10\,x - 7)}$

$D = x^2 - 49$

$D = x^2 - 7^2$

$\boxed{D = (x - 7)\,(x + 7)}$

$E = 25\,x^2 - 100 - (5\,x - 10)\,(5\,x - 2)$

$E = (5\,x)^2 - 10^2 - (5\,x - 10)\,(5\,x - 2)$

$E = (5\,x - 10)\,(5\,x + 10) - (5\,x - 10)\,(5\,x - 2)$

$E = (5\,x - 10)\,(5\,x + 10 - (5\,x - 2))$

$E = (5\,x - 10)\,(5\,x + 10 - 5\,x + 2)$

$\boxed{E = (5\,x - 10) \times 12}$

$F = -(9\,x + 9)\,(-9\,x - 8) - (9\,x + 9)\,(-2\,x - 1)$

$F = (9\,x + 9)\,\big(-(-9\,x - 8) - (-2\,x - 1)\big)$

$F = (9\,x + 9)\,(9\,x + 8 + 2\,x + 1)$

$\boxed{F = (9\,x + 9)\,(11\,x + 9)}$

Corrigé de l'exercice 10

Factoriser les expressions suivantes.

$A = (x - 9)^2 - 25$

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

$A = (x - 9 + 5)\,(x - 9 - 5)$

$A =$

$\boxed{A = (x - 4)\,(x - 14)}$

$B = -(-9\,x + 3)\,(-8\,x + 8) - (-9\,x + 3)\,(-10\,x - 3)$

$B = (-9\,x + 3)\,\big(-(-8\,x + 8) - (-10\,x - 3)\big)$

$B = (-9\,x + 3)\,(8\,x - 8 + 10\,x + 3)$

$\boxed{B = (-9\,x + 3)\,(18\,x - 5)}$

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

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

$C = (5\,x + 10)\,\big(-1 - (-9\,x + 10)\big)$

$C = (5\,x + 10)\,(-1 + 9\,x - 10)$

$\boxed{C = (5\,x + 10)\,(9\,x - 11)}$

$D = 9\,x^2 - 1$

$D = (3\,x)^2 - 1^2$

$\boxed{D = (3\,x + 1)\,(3\,x - 1)}$

$E = (9\,x - 10)\,(10\,x - 10) + 100\,x^2 - 100$

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

$E = (9\,x - 10)\,(10\,x - 10) + (10\,x - 10)\,(10\,x + 10)$

$E = (10\,x - 10)\,(9\,x - 10 + 10\,x + 10)$

$\boxed{E = (10\,x - 10) \times 19\,x}$

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

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

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

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