Groupe des Instituts Excel

Corrections

Corrigé de l'exercice 1

Développer et réduire les expressions suivantes.

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

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

$\boxed{A = 4x^2 + 36x + 81}$

$B = (x+7)(-2x+8)$

$B = -2x^2 + 8x + (-14x) + 56$

$\boxed{B = -2x^2 - 6x + 56}$

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

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

$\boxed{C = 4x^2 - 40x + 100}$

$D = (10x-8)(10x+8)$

$D = (10x)^2 - 8^2$

$\boxed{D = 100x^2 - 64}$

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

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

$E = 9x^2 - 24x + 16 - x^2 + 5x - 6$

$\boxed{E = 8x^2 - 19x + 10}$

$F = (7x-8)(7x+8) + (6x+4)^2$

$F = (7x)^2 - 8^2 + (6x)^2 + 2 \times 6x \times 4 + 4^2$

$F = 49x^2 - 64 + 36x^2 + 48x + 16$

$\boxed{F = 85x^2 + 48x - 48}$

Corrigé de l'exercice 2

Développer et réduire les expressions suivantes.

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

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

$\boxed{A = 81x^2 - 25}$

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

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

$\boxed{B = 25x^2 - 90x + 81}$

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

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

$\boxed{C = 100x^2 + 60x + 9}$

$D = (3x+8)(6x-8)$

$D = 18x^2 + (-24x) + 48x + (-64)$

$\boxed{D = 18x^2 + 24x - 64}$

$E = (5\,x - 6)\,(5\,x + 6) - (4\,x - 8)\,(7\,x - 8)$

$E = (5\,x)^2 - 6^2 - (28\,x^2 + (-32\,x) + (-56\,x) + 64)$

$E = 25\,x^2 - 36 - (28\,x^2 - 88\,x + 64)$

$E = 25\,x^2 - 36 - 28\,x^2 + 88\,x - 64$

$$E = -3\,x^2 + 88\,x - 100$$

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

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

$F = 100\,x^2 - 100\,x + 25 - (49\,x^2 + 98\,x + 49)$

$F = 100\,x^2 - 100\,x + 25 - 49\,x^2 - 98\,x - 49$

$$F = 51\,x^2 - 198\,x - 24$$

Corrigé de l'exercice 3

Développer et réduire les expressions suivantes.

$A = (x - 7)\,(-2\,x - 1)$

$A = -2\,x^2 + (-x) + 14\,x + 7$

$$A = -2\,x^2 + 13\,x + 7$$

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

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

$$B = 81\,x^2 + 36\,x + 4$$

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

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

$$C = 36\,x^2 - 25$$

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

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

$$D = 25\,x^2 - 70\,x + 49$$

$E = (4\,x - 8)^2 + (-4\,x - 10)\,(-3\,x - 9)$

$E = (4\,x)^2 - 2 \times 4\,x \times 8 + 8^2 + 12\,x^2 + 36\,x + 30\,x + 90$

$E = 16\,x^2 - 64\,x + 64 + 12\,x^2 + 66\,x + 90$

$$E = 28\,x^2 + 2\,x + 154$$

$F = (7\,x + 3)^2 + (5\,x + 9)\,(5\,x - 9)$

$F = (7\,x)^2 + 2 \times 7\,x \times 3 + 3^2 + (5\,x)^2 - 9^2$

$F = 49\,x^2 + 42\,x + 9 + 25\,x^2 - 81$

$$F = 74\,x^2 + 42\,x - 72$$

Corrigé de l'exercice 4

Développer et réduire les expressions suivantes.

$A = (2x + 9)(x + 4)$

$A = 2x^2 + 8x + 9x + 36$

$\boxed{A = 2x^2 + 17x + 36}$

$B = (5x + 3)(5x - 3)$

$B = (5x)^2 - 3^2$

$\boxed{B = 25x^2 - 9}$

$C = (7x - 1)^2$

$C = (7x)^2 - 2 \times 7x \times 1 + 1^2$

$\boxed{C = 49x^2 - 14x + 1}$

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

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

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

$E = (7x + 9)^2 + (5x - 10)^2$

$E = (7x)^2 + 2 \times 7x \times 9 + 9^2 + (5x)^2 - 2 \times 5x \times 10 + 10^2$

$E = 49x^2 + 126x + 81 + 25x^2 - 100x + 100$

$\boxed{E = 74x^2 + 26x + 181}$

$F = (8x - 7)(8x + 7) + (x + 4)(-5x + 5)$

$F = (8x)^2 - 7^2 + -5x^2 + 5x + (-20x) + 20$

$F = 64x^2 - 49 - 5x^2 - 15x + 20$

$\boxed{F = 59x^2 - 15x - 29}$

Corrigé de l'exercice 5

Développer et réduire les expressions suivantes.

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

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

$\boxed{A = 64x^2 - 64}$

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

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

$\boxed{B = 25x^2 - 60x + 36}$

$C = (3x + 9)^2$

$C = (3x)^2 + 2 \times 3x \times 9 + 9^2$

$\boxed{C = 9x^2 + 54x + 81}$

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

$D = 9x^2 + (-10x) + 90x + (-100)$

$\boxed{D = 9x^2 + 80x - 100}$

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

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

$E = -(81\,x^2 - 72\,x + 16) + 9\,x^2 + 24\,x + 16$

$E = -81\,x^2 + 72\,x - 16 + 9\,x^2 + 24\,x + 16$

$\boxed{E = -72\,x^2 + 96\,x}$

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

$F = -2\,x^2 + (-5\,x) + (-14\,x) + (-35) + (6\,x)^2 - 2^2$

$F = -2\,x^2 - 19\,x - 35 + 36\,x^2 - 4$

$\boxed{F = 34\,x^2 - 19\,x - 39}$

Corrigé de l'exercice 6

Développer et réduire les expressions suivantes.

$A = (10\,x - 7)\,(10\,x + 7)$

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

$\boxed{A = 100\,x^2 - 49}$

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

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

$\boxed{B = 36\,x^2 - 96\,x + 64}$

$C = (x + 6)^2$

$C = x^2 + 2 \times x \times 6 + 6^2$

$\boxed{C = x^2 + 12\,x + 36}$

$D = (-10\,x + 5)\,(-7\,x - 9)$

$D = 70\,x^2 + 90\,x + (-35\,x) + (-45)$

$\boxed{D = 70\,x^2 + 55\,x - 45}$

$E = -(-7\,x + 9)\,(6\,x - 3) - (5\,x + 10)^2$

$E = -(-42\,x^2 + 21\,x + 54\,x + (-27)) - ((5\,x)^2 + 2 \times 5\,x \times 10 + 10^2)$

$E = -(-42\,x^2 + 75\,x - 27) - (25\,x^2 + 100\,x + 100)$

$E = 42\,x^2 - 75\,x + 27 - 25\,x^2 - 100\,x - 100$

$\boxed{E = 17\,x^2 - 175\,x - 73}$

$F = -(3\,x + 10)\,(3\,x - 10) + (2\,x - 9)^2$

$F = -((3\,x)^2 - 10^2) + (2\,x)^2 - 2 \times 2\,x \times 9 + 9^2$

$F = -(9\,x^2 - 100) + 4\,x^2 - 36\,x + 81$

$F = -9\,x^2 + 100 + 4\,x^2 - 36\,x + 81$

$\boxed{F = -5\,x^2 - 36\,x + 181}$