Groupe des Instituts Excel

Corrections

Corrigé de l'exercice 1

Développer et réduire les expressions suivantes.

$A = (4x+3)^2$

$A = (4x)^2 + 2 \times 4x \times 3 + 3^2$

$\boxed{A = 16x^2 + 24x + 9}$

$B = (4x+8)(4x-8)$

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

$\boxed{B = 16x^2 - 64}$

$C = (6x-3)^2$

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

$\boxed{C = 36x^2 - 36x + 9}$

$D = (-3x+3)(-5x-10)$

$D = 15x^2 + 30x + (-15x) + (-30)$

$\boxed{D = 15x^2 + 15x - 30}$

$E = (-3x-1)(-9x-4) - (10x+10)^2$

$E = 27x^2 + 12x + 9x + 4 - ((10x)^2 + 2 \times 10x \times 10 + 10^2)$

$E = 27x^2 + 21x + 4 - (100x^2 + 200x + 100)$

$E = 27x^2 + 21x + 4 - 100x^2 - 200x - 100$

$\boxed{E = -73x^2 - 179x - 96}$

$F = (5x-6)(5x+6) + (10x-1)^2$

$F = (5x)^2 - 6^2 + (10x)^2 - 2 \times 10x \times 1 + 1^2$

$F = 25x^2 - 36 + 100x^2 - 20x + 1$

$\boxed{F = 125x^2 - 20x - 35}$

Corrigé de l'exercice 2

Développer et réduire les expressions suivantes.

$A = (-6x+2)(8x-3)$

$A = -48x^2 + 18x + 16x + (-6)$

$\boxed{A = -48x^2 + 34x - 6}$

$B = (6x+8)^2$

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

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

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

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

$\boxed{C = 36x^2 - 81}$

$D = (5x-1)^2$

$D = (5x)^2 - 2 \times 5x \times 1 + 1^2$

$\boxed{D = 25x^2 - 10x + 1}$

$E = -(8\,x + 9)\,(6\,x + 3) - (6\,x - 10)\,(6\,x + 10)$

$E = -(48\,x^2 + 24\,x + 54\,x + 27) - ((6\,x)^2 - 10^2)$

$E = -(48\,x^2 + 78\,x + 27) - (36\,x^2 - 100)$

$E = -48\,x^2 - 78\,x - 27 - 36\,x^2 + 100$

$$\boxed{E = -84\,x^2 - 78\,x + 73}$$

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

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

$F = -(100\,x^2 - 60\,x + 9) + 64\,x^2 + 160\,x + 100$

$F = -100\,x^2 + 60\,x - 9 + 64\,x^2 + 160\,x + 100$

$$\boxed{F = -36\,x^2 + 220\,x + 91}$$

Corrigé de l'exercice 3

Développer et réduire les expressions suivantes.

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

$A = (6\,x)^2 + 2 \times 6\,x \times 9 + 9^2$

$$\boxed{A = 36\,x^2 + 108\,x + 81}$$

$B = (-5\,x + 1)\,(7\,x + 4)$

$B = -35\,x^2 + (-20\,x) + 7\,x + 4$

$$\boxed{B = -35\,x^2 - 13\,x + 4}$$

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

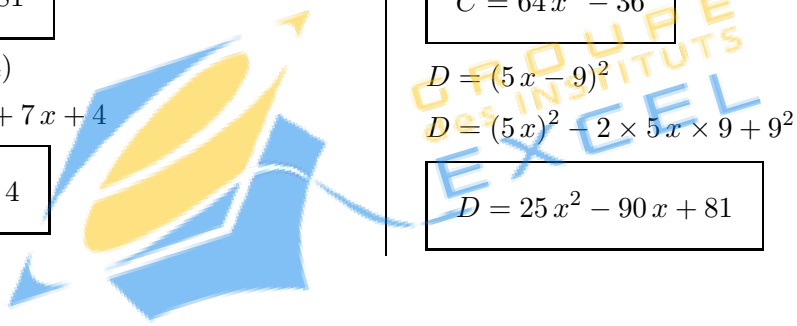
$C = (8\,x)^2 - 6^2$

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

$D = (5\,x - 9)^2$

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

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



$E = (3\,x + 3)\,(3\,x - 3) + (7\,x - 9)\,(4\,x + 6)$

$E = (3\,x)^2 - 3^2 + 28\,x^2 + 42\,x + (-36\,x) + (-54)$

$E = 9\,x^2 - 9 + 28\,x^2 + 6\,x - 54$

$$\boxed{E = 37\,x^2 + 6\,x - 63}$$

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

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

$F = 9\,x^2 - 18\,x + 9 + x^2 + 20\,x + 100$

$$\boxed{F = 10\,x^2 + 2\,x + 109}$$

Corrigé de l'exercice 4

Développer et réduire les expressions suivantes.

$A = (-7x - 10)(-3x + 5)$

$A = 21x^2 + (-35x) + 30x + (-50)$

$\boxed{A = 21x^2 - 5x - 50}$

$B = (3x - 6)(3x + 6)$

$B = (3x)^2 - 6^2$

$\boxed{B = 9x^2 - 36}$

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

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

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

$D = (6x + 9)^2$

$D = (6x)^2 + 2 \times 6x \times 9 + 9^2$

$\boxed{D = 36x^2 + 108x + 81}$

$E = -(9x + 2)^2 - (8x + 5)(8x - 5)$

$E = -((9x)^2 + 2 \times 9x \times 2 + 2^2) - ((8x)^2 - 5^2)$

$E = -(81x^2 + 36x + 4) - (64x^2 - 25)$

$E = -81x^2 - 36x - 4 - 64x^2 + 25$

$\boxed{E = -145x^2 - 36x + 21}$

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

$F = -(-49x^2 + 35x + (-49x) + 35) - ((7x)^2 - 2 \times 7x \times 9 + 9^2)$

$F = -(-49x^2 - 14x + 35) - (49x^2 - 126x + 81)$

$F = 49x^2 + 14x - 35 - 49x^2 + 126x - 81$

$\boxed{F = 140x - 116}$

Corrigé de l'exercice 5

Développer et réduire les expressions suivantes.

$A = (7x + 8)(7x - 8)$

$A = (7x)^2 - 8^2$

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

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

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

$\boxed{B = 9x^2 + 12x + 4}$

$C = (-5x - 1)(-10x + 7)$

$C = 50x^2 + (-35x) + 10x + (-7)$

$\boxed{C = 50x^2 - 25x - 7}$

$D = (5x - 1)^2$

$D = (5x)^2 - 2 \times 5x \times 1 + 1^2$

$\boxed{D = 25x^2 - 10x + 1}$

$E = (3\,x - 3)^2 - (-7\,x - 9)\,(-8\,x - 6)$

$E = (3\,x)^2 - 2 \times 3\,x \times 3 + 3^2 - (56\,x^2 + 42\,x + 72\,x + 54)$

$E = 9\,x^2 - 18\,x + 9 - (56\,x^2 + 114\,x + 54)$

$E = 9\,x^2 - 18\,x + 9 - 56\,x^2 - 114\,x - 54$

$\boxed{E = -47\,x^2 - 132\,x - 45}$

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

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

$F = -(36\,x^2 - 81) - (49\,x^2 + 28\,x + 4)$

$F = -36\,x^2 + 81 - 49\,x^2 - 28\,x - 4$

$\boxed{F = -85\,x^2 - 28\,x + 77}$

Corrigé de l'exercice 6

Développer et réduire les expressions suivantes.

$A = (7\,x + 9)^2$

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

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

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

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

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

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

$C = -50\,x^2 + (-10\,x) + 50\,x + 10$

$\boxed{C = -50\,x^2 + 40\,x + 10}$

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

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

$\boxed{D = 16\,x^2 - 64}$

$E = (-4\,x - 4)\,(-5\,x - 10) + (7\,x + 8)\,(7\,x - 8)$

$E = 20\,x^2 + 40\,x + 20\,x + 40 + (7\,x)^2 - 8^2$

$E = 20\,x^2 + 60\,x + 40 + 49\,x^2 - 64$

$\boxed{E = 69\,x^2 + 60\,x - 24}$

$F = (2\,x + 7)^2 + (8\,x - 10)^2$

$F = (2\,x)^2 + 2 \times 2\,x \times 7 + 7^2 + (8\,x)^2 - 2 \times 8\,x \times 10 + 10^2$

$F = 4\,x^2 + 28\,x + 49 + 64\,x^2 - 160\,x + 100$

$\boxed{F = 68\,x^2 - 132\,x + 149}$