Groupe des Instituts Excel

Corrections

Corrigé de l'exercice 1

Développer chacune des expressions littérales suivantes :

$A = (9x+3)^2$
$A = (9x)^2 + 2 \times 9x \times 3 + 3^2$
$\boxed{A = 81x^2 + 54x + 9}$

$B = (4x-8)^2$
$B = (4x)^2 - 2 \times 4x \times 8 + 8^2$
$\boxed{B = 16x^2 - 64x + 64}$

$C = (7x-2) \times (2x+7)$
$C = 7x \times 2x + 7x \times 7 - 2 \times 2x - 2 \times 7$
$C = 14x^2 + 49x - 4x - 14$
$C = 14x^2 + (49-4)\,x - 14$
$\boxed{C = 14x^2 + 45x - 14}$

$D = (3x+4) \times (3x-4)$
$D = (3x)^2 - 4^2$
$\boxed{D = 9x^2 - 16}$

$E = -(3x-6)^2$
$E = -\left((3x)^2 - 2 \times 3x \times 6 + 6^2\right)$
$E = -(9x^2 - 36x + 36)$
$\boxed{E = -9x^2 + 36x - 36}$

$F = \left(\frac{3}{8}x + \frac{9}{7}\right)^2$
$F = \left(\frac{3}{8}x\right)^2 + 2 \times \frac{3}{8}x \times \frac{9}{7} + \left(\frac{9}{7}\right)^2$
$F = \frac{9}{64}x^2 + \frac{27 \times 2}{28 \times 2}x + \frac{81}{49}$
$\boxed{F = \frac{9}{64}x^2 + \frac{27}{28}x + \frac{81}{49}}$

Corrigé de l'exercice 2

Développer chacune des expressions littérales suivantes :

$A = (6x-5)^2$
$A = (6x)^2 - 2 \times 6x \times 5 + 5^2$
$\boxed{A = 36x^2 - 60x + 25}$

$B = (5x+2)^2$
$B = (5x)^2 + 2 \times 5x \times 2 + 2^2$
$\boxed{B = 25x^2 + 20x + 4}$

$C = (10x+2) \times (2x-10)$
$C = 10x \times 2x + 10x \times (-10) + 2 \times 2x + 2 \times (-10)$
$C = 20x^2 - 100x + 4x - 20$
$C = 20x^2 + (-100+4)\,x - 20$
$\boxed{C = 20x^2 - 96x - 20}$

$D = (8x+1) \times (8x-1)$
$D = (8x)^2 - 1^2$
$\boxed{D = 64x^2 - 1}$

$E = \left(\frac{4}{5}x - \frac{3}{2}\right)^2$
$E = \left(\frac{4}{5}x\right)^2 - 2 \times \frac{4}{5}x \times \frac{3}{2} + \left(\frac{3}{2}\right)^2$
$E = \frac{16}{25}x^2 - \frac{12 \times 2}{5 \times 2}x + \frac{9}{4}$
$\boxed{E = \frac{16}{25}x^2 - \frac{12}{5}x + \frac{9}{4}}$

$F = -(8x-5) \times (8x+5)$
$F = -\left((8x)^2 - 5^2\right)$
$F = -(64x^2 - 25)$
$\boxed{F = -64x^2 + 25}$

Corrigé de l'exercice 3

Développer chacune des expressions littérales suivantes :

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

$$\boxed{A = 36\,x^2 - 65\,x - 36}$$

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

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

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

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

$$\boxed{C = 4\,x^2 + 24\,x + 36}$$

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

$$\boxed{D = 49\,x^2 - 98\,x + 49}$$

$E = \left(\frac{5}{6}\,x - \frac{9}{7}\right) \times \left(\frac{5}{6}\,x + \frac{9}{7}\right)$
$E = \left(\frac{5}{6}\,x\right)^2 - \left(\frac{9}{7}\right)^2$

$$\boxed{E = \frac{25}{36}\,x^2 - \frac{81}{49}}$$

$F = -\,(7\,x - 7)^2$
$F = -\left((7\,x)^2 - 2 \times 7\,x \times 7 + 7^2\right)$
$F = -\,(49\,x^2 - 98\,x + 49)$

$$\boxed{F = -49\,x^2 + 98\,x - 49}$$

Corrigé de l'exercice 4

Développer chacune des expressions littérales suivantes :

$A = (8\,x + 9)^2$
$A = (8\,x)^2 + 2 \times 8\,x \times 9 + 9^2$

$$\boxed{A = 64\,x^2 + 144\,x + 81}$$

$B = (2\,x - 9) \times (9\,x + 2)$
$B = 2\,x \times 9\,x + 2\,x \times 2 - 9 \times 9\,x - 9 \times 2$
$B = 18\,x^2 + 4\,x - 81\,x - 18$
$B = 18\,x^2 + (4 - 81)\,x - 18$

$$\boxed{B = 18\,x^2 - 77\,x - 18}$$

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

$$\boxed{C = 49\,x^2 - 81}$$

$D = (x - 8)^2$
$D = x^2 - 2 \times x \times 8 + 8^2$

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

$E = \left(\frac{2}{3}\,x - 4\right) \times \left(\frac{2}{3}\,x + 4\right)$
$E = \left(\frac{2}{3}\,x\right)^2 - 4^2$

$$\boxed{E = \frac{4}{9}\,x^2 - 16}$$

$F = -\,(2\,x + 4) \times (4\,x - 2)$
$F = -\,(2\,x \times 4\,x + 2\,x \times (-2) + 4 \times 4\,x + 4 \times (-2))$
$F = -\,(8\,x^2 - 4\,x + 16\,x - 8)$
$F = -\,(8\,x^2 + (-4 + 16)\,x - 8)$
$F = -\,(8\,x^2 + 12\,x - 8)$

$$\boxed{F = -8\,x^2 - 12\,x + 8}$$

Corrigé de l'exercice 5

Développer chacune des expressions littérales suivantes :

$A = (5x - 7) \times (7x + 5)$
$A = 5x \times 7x + 5x \times 5 - 7 \times 7x - 7 \times 5$
$A = 35x^2 + 25x - 49x - 35$
$A = 35x^2 + (25 - 49)\ x - 35$
$\boxed{A = 35x^2 - 24x - 35}$

$B = (x + 10)^2$
$B = x^2 + 2 \times x \times 10 + 10^2$
$\boxed{B = x^2 + 20x + 100}$

$C = (10x - 4)^2$
$C = (10x)^2 - 2 \times 10x \times 4 + 4^2$
$\boxed{C = 100x^2 - 80x + 16}$

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

$E = \left(\frac{1}{2}x - \frac{2}{5}\right)^2$
$E = \left(\frac{1}{2}x\right)^2 - 2 \times \frac{1}{2}x \times \frac{2}{5} + \left(\frac{2}{5}\right)^2$
$E = \frac{1}{4}x^2 - \frac{2 \times \cancel{2}}{5 \times \cancel{2}}x + \frac{4}{25}$
$\boxed{E = \frac{1}{4}x^2 - \frac{2}{5}x + \frac{4}{25}}$

$F = -(8x + 4)^2$
$F = -\left((8x)^2 + 2 \times 8x \times 4 + 4^2\right)$
$F = -(64x^2 + 64x + 16)$
$\boxed{F = -64x^2 - 64x - 16}$

Corrigé de l'exercice 6

Développer chacune des expressions littérales suivantes :

$A = (10x - 3)^2$
$A = (10x)^2 - 2 \times 10x \times 3 + 3^2$
$\boxed{A = 100x^2 - 60x + 9}$

$B = (6x - 6) \times (6x + 6)$
$B = (6x)^2 - 6^2$
$\boxed{B = 36x^2 - 36}$

$C = (6x + 9)^2$
$C = (6x)^2 + 2 \times 6x \times 9 + 9^2$
$\boxed{C = 36x^2 + 108x + 81}$

$D = (5x + 4) \times (4x - 5)$
$D = 5x \times 4x + 5x \times (-5) + 4 \times 4x + 4 \times (-5)$
$D = 20x^2 - 25x + 16x - 20$
$D = 20x^2 + (-25 + 16)\ x - 20$
$\boxed{D = 20x^2 - 9x - 20}$

$E = \left(5x + \frac{9}{5}\right)^2$
$E = (5x)^2 + 2 \times 5x \times \frac{9}{5} + \left(\frac{9}{5}\right)^2$
$E = 25x^2 + \frac{18 \times \cancel{5}}{1 \times \cancel{5}}x + \frac{81}{25}$
$\boxed{E = 25x^2 + 18x + \frac{81}{25}}$

$F = -(3x + 7) \times (7x - 3)$
$F = -(3x \times 7x + 3x \times (-3) + 7 \times 7x + 7 \times (-3))$
$F = -(21x^2 - 9x + 49x - 21)$
$F = -(21x^2 + (-9 + 49)\ x - 21)$
$F = -(21x^2 + 40x - 21)$
$\boxed{F = -21x^2 - 40x + 21}$