

Groupe des Instituts Excel

Corrections

Corrigé de l'exercice 1

Développer chacune des expressions littérales suivantes :

$$A = (9x - 8)^2$$

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

$$A = 81x^2 - 144x + 64$$

$$B = (7x - 5) \times (7x + 5)$$

$$B = (7x)^2 - 5^2$$

$$B = 49x^2 - 25$$

$$C = (5x + 4)^2$$

$$C = (5x)^2 + 2 \times 5x \times 4 + 4^2$$

$$C = 25x^2 + 40x + 16$$

$$D = (9x + 1) \times (x - 9)$$

$$D = 9x \times x + 9x \times (-9) + 1 \times x + 1 \times (-9)$$

$$D = 9x^2 - 81x + x - 9$$

$$D = 9x^2 + (-81 + 1)x - 9$$

$$D = 9x^2 - 80x - 9$$

$$E = -(10x - 9)^2$$

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

$$E = -(100x^2 - 180x + 81)$$

$$E = -100x^2 + 180x - 81$$

$$F = \left(8x + \frac{2}{7}\right) \times \left(8x - \frac{2}{7}\right)$$

$$F = (8x)^2 - \left(\frac{2}{7}\right)^2$$

$$F = 64x^2 - \frac{4}{49}$$

Corrigé de l'exercice 2

Développer chacune des expressions littérales suivantes :

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

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

$$A = 4x^2 + 32x + 64$$

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

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

$$B = 36x^2 - 49$$

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

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

$$C = 9x^2 - 18x + 9$$

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

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

$$D = 35x^2 - 49x + 25x - 35$$

$$D = 35x^2 + (-49 + 25)x - 35$$

$$D = 35x^2 - 24x - 35$$

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

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

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

$$E = -x^2 + 4x - 4$$

$$F = \left(\frac{1}{10}x + \frac{9}{7}\right)^2$$

$$F = \left(\frac{1}{10}x\right)^2 + 2 \times \frac{1}{10}x \times \frac{9}{7} + \left(\frac{9}{7}\right)^2$$

$$F = \frac{1}{100}x^2 + \frac{9 \times 2}{35 \times 2}x + \frac{81}{49}$$

$$F = \frac{1}{100}x^2 + \frac{9}{35}x + \frac{81}{49}$$

Corrigé de l'exercice 3

Développer chacune des expressions littérales suivantes :

$$A = (5x - 8)^2$$

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

$$A = 25x^2 - 80x + 64$$

$$B = (5x - 8) \times (5x + 8)$$

$$B = (5x)^2 - 8^2$$

$$B = 25x^2 - 64$$

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

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

$$C = 10x^2 - 100x + x - 10$$

$$C = 10x^2 + (-100 + 1)x - 10$$

$$C = 10x^2 - 99x - 10$$

$$E = -100x^2 + 49$$

$$D = (2x + 8)^2$$

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

$$D = 4x^2 + 32x + 64$$

$$F = \left(\frac{4}{3}x - \frac{7}{3}\right) \times \left(\frac{7}{3}x + \frac{4}{3}\right)$$

$$F = \frac{4}{3}x \times \frac{7}{3}x + \frac{4}{3}x \times \frac{4}{3} - \frac{7}{3} \times \frac{7}{3}x - \frac{7}{3} \times \frac{4}{3}$$

$$F = \frac{28}{9}x^2 + \frac{16}{9}x - \frac{49}{9}x - \frac{28}{9}$$

$$F = \frac{28}{9}x^2 + \left(\frac{16}{9} - \frac{49}{9}\right)x - \frac{28}{9}$$

$$F = \frac{28}{9}x^2 - \frac{33}{9}x - \frac{28}{9}$$

$$F = \frac{28}{9}x^2 - \frac{11 \times 3}{3 \times 3}x - \frac{28}{9}$$

$$F = \frac{28}{9}x^2 - \frac{11}{3}x - \frac{28}{9}$$

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

$$E = -((10x)^2 - 7^2)$$

$$E = -(100x^2 - 49)$$

Corrigé de l'exercice 4

Développer chacune des expressions littérales suivantes :

$$A = (x + 5)^2$$

$$A = x^2 + 2 \times x \times 5 + 5^2$$

$$A = x^2 + 10x + 25$$

$$E = -(x^2 - 5^2)$$

$$E = -(x^2 - 25)$$

$$E = -x^2 + 25$$

$$B = (7x + 7) \times (7x - 7)$$

$$B = (7x)^2 - 7^2$$

$$B = 49x^2 - 49$$

$$F = \left(\frac{3}{10}x - \frac{5}{8}\right) \times \left(\frac{5}{8}x + \frac{3}{10}\right)$$

$$F = \frac{3}{10}x \times \frac{5}{8}x + \frac{3}{10}x \times \frac{3}{10} - \frac{5}{8} \times \frac{5}{8}x - \frac{5}{8} \times \frac{3}{10}$$

$$F = \frac{3 \times 5}{16 \times 8}x^2 + \frac{9}{100}x - \frac{25}{64}x - \frac{16 \times 5}{16 \times 8}$$

$$F = \frac{3 \times 5}{16 \times 8}x^2 + \left(\frac{9}{100} - \frac{25}{64}\right)x - \frac{3 \times 5}{16 \times 8}$$

$$F = \frac{3}{16}x^2 + \left(\frac{9 \times 16}{100 \times 16} - \frac{25 \times 25}{64 \times 25}\right)x - \frac{3}{16}$$

$$F = \frac{3}{16}x^2 + \left(\frac{144}{1600} - \frac{625}{1600}\right)x - \frac{3}{16}$$

$$F = \frac{3}{16}x^2 - \frac{481}{1600}x - \frac{3}{16}$$

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

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

$$C = 4x^2 - 1$$

$$D = (9x - 8)^2$$

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

$$D = 81x^2 - 144x + 64$$

$$E = -(x + 5) \times (x - 5)$$

Corrigé de l'exercice 5

Développer chacune des expressions littérales suivantes :

$$A = (10x + 8) \times (10x - 8)$$

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

$$A = 100x^2 - 64$$

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

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

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

$$D = 7x \times 9x + 7x \times 7 - 9 \times 9x - 9 \times 7$$

$$D = 63x^2 + 49x - 81x - 63$$

$$D = 63x^2 + (49 - 81)x - 63$$

$$D = 63x^2 - 32x - 63$$

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

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

$$E = -(8x^2 - 64x + x - 8)$$

$$E = -(8x^2 + (-64 + 1)x - 8)$$

$$E = -(8x^2 - 63x - 8)$$

$$B = 36x^2 + 72x + 36$$

$$C = (3x - 4)^2$$

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

$$C = 9x^2 - 24x + 16$$

$$E = -8x^2 + 63x + 8$$

$$F = \left(\frac{7}{2}x - \frac{8}{7}\right)^2$$

$$F = \left(\frac{7}{2}x\right)^2 + 2 \times \frac{7}{2}x \times \frac{8}{7} + \left(\frac{8}{7}\right)^2$$

$$F = \frac{49}{4}x^2 + \frac{8 \times 14}{1 \times 14}x + \frac{64}{49}$$

$$F = \frac{49}{4}x^2 + 8x + \frac{64}{49}$$

Corrigé de l'exercice 6

Développer chacune des expressions littérales suivantes :

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

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

$$A = 81x^2 + 54x + 9$$

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

$$B = 4x \times 8x + 4x \times 4 - 8 \times 8x - 8 \times 4$$

$$B = 32x^2 + 16x - 64x - 32$$

$$B = 32x^2 + (16 - 64)x - 32$$

$$B = 32x^2 - 48x - 32$$

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

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

$$C = 100x^2 - 64$$

$$D = (9x - 10)^2$$

$$D = (9x)^2 - 2 \times 9x \times 10 + 10^2$$

$$D = 81x^2 - 180x + 100$$

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

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

$$E = -(4x^2 + 16x + 16)$$

$$E = -4x^2 - 16x - 16$$

$$F = \left(\frac{1}{9}x - \frac{7}{6}\right)^2$$

$$F = \left(\frac{1}{9}x\right)^2 - 2 \times \frac{1}{9}x \times \frac{7}{6} + \left(\frac{7}{6}\right)^2$$

$$F = \frac{1}{81}x^2 - \frac{7 \times 2}{27 \times 2}x + \frac{49}{36}$$

$$F = \frac{1}{81}x^2 - \frac{7}{27}x + \frac{49}{36}$$