Exercice 1

Réduire, si possible, les expressions suivantes :

▶**1.** $A = -4\,a \times 10\,a$

▶**2.** $B = -8\,x \times (-1)$

▶**3.** $C = 10\,x^2 \times 10$

▶**4.** $D = 8\,x^2 - 7\,x^2$

▶**5.** $E = -6 \times 8\,x^2$

▶**6.** $F = 6 \times (-y^2)$

▶**7.** $G = -1 \times (-6\,a^2)$

▶**8.** $H = -3\,x \times 3\,x$

▶**9.** $I = -2\,x^2 - 7\,x^2$

Exercice 2

Réduire chacune des expressions littérales suivantes :

$A = -3 + (-6\,x + 8) - 10\,x$
$B = -9 + 8\,x - (-6\,x + 8)$
$C = (8\,x + 5) + 2\,x + 3$

$D = -7 - 9\,x - (-10\,x + 9)$
$E = -8\,x - (5\,x - 6) - 6$
$F = -10\,x - (3\,x - 4) - 6$

Exercice 3

Développer et réduire chacune des expressions littérales suivantes :

$A = 4\,x \times x$
$B = 6\,x \times 7\,x$
$C = 9\,x^2 + (4\,x + 9) \times (-9\,x + 9)$

$D = (-6\,x - 2) \times (7\,x + 6) + 4\,x - 3$
$E = -3 + (-6\,x - 2) \times (x - 4)$

Exercice 4

Développer chacune des expressions littérales suivantes :

$A = (7\,x + 6) \times (7\,x - 6)$
$B = (7\,x - 5)^2$
$C = (10\,x - 1) \times (x + 10)$

$D = (7\,x + 8)^2$
$E = -(2\,x - 8)^2$
$F = \left(7\,x + \dfrac{3}{5}\right)^2$

Exercice 5

Développer chacune des expressions littérales suivantes :

$A = (5\,x + 3)^2$
$B = (6\,x - 6)^2$
$C = (9\,x - 7) \times (7\,x + 9)$

$D = (3\,x - 1) \times (3\,x + 1)$
$E = -(8\,x - 1)^2$
$F = \left(\dfrac{3}{8}\,x + 6\right)^2$

Corrigé de l'exercice 1

Réduire, si possible, les expressions suivantes :

▶**1.** $A = -4\,a \times 10\,a$

$A = -4 \times a \times 10 \times a$

$A = -4 \times 10 \times a \times a$

$A = -40\,a^2$

▶**2.** $B = -8\,x \times (-1)$

$B = -8 \times x \times (-1)$

$B = -8 \times (-1) \times x$

$B = 8\,x$

▶**3.** $C = 10\,x^2 \times 10$

$C = 10 \times x^2 \times 10$

$C = 10 \times 10 \times x^2$

$C = 100\,x^2$

▶**4.** $D = 8\,x^2 - 7\,x^2$

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

$D = x^2$

▶**5.** $E = -6 \times 8\,x^2$

$E = -6 \times 8 \times x^2$

$E = -48\,x^2$

▶**6.** $F = 6 \times (-y^2)$

$F = 6 \times (-1) \times y^2$

$F = -6\,y^2$

▶**7.** $G = -1 \times (-6\,a^2)$

$G = -1 \times (-6) \times a^2$

$G = 6\,a^2$

▶**8.** $H = -3\,x \times 3\,x$

$H = -3 \times x \times 3 \times x$

$H = -3 \times 3 \times x \times x$

$H = -9\,x^2$

▶**9.** $I = -2\,x^2 - 7\,x^2$

$I = (-2 - 7)\,x^2$

$I = -9\,x^2$

Corrigé de l'exercice 2

Réduire chacune des expressions littérales suivantes :

$A = -3 + (-6\,x + 8) - 10\,x$
$A = -3 - 6\,x + 8 - 10\,x$
$A = -6\,x - 10\,x - 3 + 8$
$A = (-6 - 10)\,x + 5$

$$\boxed{A = -16\,x + 5}$$

$B = -9 + 8\,x - (-6\,x + 8)$
$B = 8\,x - 9 - (-6\,x + 8)$
$B = 8\,x - 9 + 6\,x - 8$
$B = 8\,x + 6\,x - 9 - 8$
$B = (8 + 6)\,x - 17$

$$\boxed{B = 14\,x - 17}$$

$C = (8\,x + 5) + 2\,x + 3$
$C = 8\,x + 5 + 2\,x + 3$
$C = 8\,x + 2\,x + 5 + 3$
$C = (8 + 2)\,x + 8$

$$\boxed{C = 10\,x + 8}$$

$D = -7 - 9\,x - (-10\,x + 9)$
$D = -9\,x - 7 - (-10\,x + 9)$
$D = -9\,x - 7 + 10\,x - 9$
$D = -9\,x + 10\,x - 7 - 9$
$D = (-9 + 10)\,x - 16$

$$\boxed{D = x - 16}$$

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

$$\boxed{E = -13\,x}$$

$F = -10\,x - (3\,x - 4) - 6$
$F = -10\,x - 3\,x + 4 - 6$
$F = (-10 - 3)\,x - 2$

$$\boxed{F = -13\,x - 2}$$

Corrigé de l'exercice 3

Développer et réduire chacune des expressions littérales suivantes :

$A = 4\,x \times x$
$A = 4 \times x \times x$

$$\boxed{A = 4\,x^2}$$

$B = 6\,x \times 7\,x$
$B = 6 \times x \times 7 \times x$
$B = 6 \times 7 \times x \times x$

$$\boxed{B = 42\,x^2}$$

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

$$\boxed{C = -27\,x^2 - 45\,x + 81}$$

$D = (-6\,x - 2) \times (7\,x + 6) + 4\,x - 3$
$D = -6\,x \times 7\,x - 6\,x \times 6 - 2 \times 7\,x - 2 \times 6 + 4\,x - 3$
$D = -6 \times x \times 7 \times x - 6 \times x \times 6 - 2 \times 7 \times x - 12 + 4\,x - 3$
$D = -6 \times 7 \times x \times x - 6 \times 6 \times x - 14\,x + 4\,x - 12 - 3$
$D = -42\,x^2 - 36\,x + (-14 + 4)\,x - 15$
$D = -42\,x^2 + (-36 + (-14) + 4)\,x - 15$

$$\boxed{D = -42\,x^2 - 46\,x - 15}$$

$E = -3 + (-6\,x - 2) \times (x - 4)$
$E = -3 - 6\,x \times x - 6\,x \times (-4) - 2 \times x - 2 \times (-4)$
$E = -3 - 6 \times x \times x - 6 \times x \times (-4) - 2\,x + 8$
$E = -3 - 6\,x^2 - 6 \times (-4) \times x - 2\,x + 8$
$E = -6\,x^2 - 3 - (-24\,x) - 2\,x + 8$
$E = -6\,x^2 + 24\,x - 3 - 2\,x + 8$
$E = -6\,x^2 + 24\,x - 2\,x - 3 + 8$
$E = -6\,x^2 + (24 - 2)\,x + 5$

$$\boxed{E = -6\,x^2 + 22\,x + 5}$$

Corrigé de l'exercice 4

Développer chacune des expressions littérales suivantes :

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

$$\boxed{A = 49\,x^2 - 36}$$

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

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

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

$$\boxed{C = 10\,x^2 + 99\,x - 10}$$

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

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

$$\boxed{D = 49\,x^2 + 112\,x + 64}$$

$E = -\,(2\,x - 8)^2$
$E = -\left((2\,x)^2 - 2 \times 2\,x \times 8 + 8^2\right)$
$E = -\,(4\,x^2 - 32\,x + 64)$

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

$F = \left(7\,x + \dfrac{3}{5}\right)^2$

$F = (7\,x)^2 + 2 \times 7\,x \times \dfrac{3}{5} + \left(\dfrac{3}{5}\right)^2$

$$\boxed{F = 49\,x^2 + \dfrac{42}{5}\,x + \dfrac{9}{25}}$$

Corrigé de l'exercice 5

Développer chacune des expressions littérales suivantes :

$A = (5\,x + 3)^2$
$A = (5\,x)^2 + 2 \times 5\,x \times 3 + 3^2$

$$\boxed{A = 25\,x^2 + 30\,x + 9}$$

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

$$\boxed{B = 36\,x^2 - 72\,x + 36}$$

$C = (9\,x - 7) \times (7\,x + 9)$
$C = 9\,x \times 7\,x + 9\,x \times 9 - 7 \times 7\,x - 7 \times 9$
$C = 63\,x^2 + 81\,x - 49\,x - 63$
$C = 63\,x^2 + (81 - 49)\,x - 63$

$$\boxed{C = 63\,x^2 + 32\,x - 63}$$

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

$$\boxed{D = 9\,x^2 - 1}$$

$E = -(8\,x - 1)^2$
$E = -\left((8\,x)^2 - 2 \times 8\,x \times 1 + 1^2\right)$
$E = -(64\,x^2 - 16\,x + 1)$

$$\boxed{E = -64\,x^2 + 16\,x - 1}$$

$F = \left(\dfrac{3}{8}\,x + 6\right)^2$

$F = \left(\dfrac{3}{8}\,x\right)^2 + 2 \times \dfrac{3}{8}\,x \times 6 + 6^2$

$F = \dfrac{9}{64}\,x^2 + \dfrac{9 \times \cancel{4}}{2 \times \cancel{4}}\,x + 36$

$$\boxed{F = \dfrac{9}{64}\,x^2 + \dfrac{9}{2}\,x + 36}$$