Corrigé de l'exercice 1

Développer chacune des expressions littérales suivantes :

$A = (4\,x + 2) \times (2\,x - 4)$
$A = 4\,x \times 2\,x + 4\,x \times (-4) + 2 \times 2\,x + 2 \times (-4)$
$A = 8\,x^2 - 16\,x + 4\,x - 8$
$A = 8\,x^2 + (-16 + 4)\,x - 8$
$\boxed{A = 8\,x^2 - 12\,x - 8}$

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

$C = (2\,x - 2)^2$
$C = (2\,x)^2 - 2 \times 2\,x \times 2 + 2^2$
$\boxed{C = 4\,x^2 - 8\,x + 4}$

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

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

$E = -(10\,x - 2) \times (10\,x + 2)$
$E = -\left((10\,x)^2 - 2^2\right)$
$E = -(100\,x^2 - 4)$
$\boxed{E = -100\,x^2 + 4}$

$F = \left(\dfrac{3}{2}\,x + \dfrac{5}{7}\right)^2$
$F = \left(\dfrac{3}{2}\,x\right)^2 + 2 \times \dfrac{3}{2}\,x \times \dfrac{5}{7} + \left(\dfrac{5}{7}\right)^2$
$F = \dfrac{9}{4}\,x^2 + \dfrac{15 \times \cancel{2}}{7 \times \cancel{2}}\,x + \dfrac{25}{49}$
$\boxed{F = \dfrac{9}{4}\,x^2 + \dfrac{15}{7}\,x + \dfrac{25}{49}}$

Corrigé de l'exercice 2

Développer chacune des expressions littérales suivantes :

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

$B = (6\,x - 9) \times (9\,x + 6)$
$B = 6\,x \times 9\,x + 6\,x \times 6 - 9 \times 9\,x - 9 \times 6$
$B = 54\,x^2 + 36\,x - 81\,x - 54$
$B = 54\,x^2 + (36 - 81)\,x - 54$
$\boxed{B = 54\,x^2 - 45\,x - 54}$

$C = (3\,x - 2)^2$
$C = (3\,x)^2 - 2 \times 3\,x \times 2 + 2^2$
$\boxed{C = 9\,x^2 - 12\,x + 4}$

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

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

$E = \left(\dfrac{7}{10}\,x + \dfrac{5}{7}\right) \times \left(\dfrac{7}{10}\,x - \dfrac{5}{7}\right)$
$E = \left(\dfrac{7}{10}\,x\right)^2 - \left(\dfrac{5}{7}\right)^2$
$\boxed{E = \dfrac{49}{100}\,x^2 - \dfrac{25}{49}}$

$F = -(9\,x + 4) \times (4\,x - 9)$
$F = -(9\,x \times 4\,x + 9\,x \times (-9) + 4 \times 4\,x + 4 \times (-9))$
$F = -(36\,x^2 - 81\,x + 16\,x - 36)$
$F = -(36\,x^2 + (-81 + 16)\,x - 36)$
$F = -(36\,x^2 - 65\,x - 36)$
$\boxed{F = -36\,x^2 + 65\,x + 36}$

Corrigé de l'exercice 3

Développer chacune des expressions littérales suivantes :

$A = (9\,x + 10)^2$
$A = (9\,x)^2 + 2 \times 9\,x \times 10 + 10^2$
$\boxed{A = 81\,x^2 + 180\,x + 100}$

$B = (2\,x + 3) \times (3\,x - 2)$
$B = 2\,x \times 3\,x + 2\,x \times (-2) + 3 \times 3\,x + 3 \times (-2)$

$B = 6\,x^2 - 4\,x + 9\,x - 6$
$B = 6\,x^2 + (-4 + 9)\,x - 6$
$\boxed{B = 6\,x^2 + 5\,x - 6}$

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

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

$$D = (8\,x + 5) \times (8\,x - 5)$$
$$D = (8\,x)^2 - 5^2$$
$$\boxed{D = 64\,x^2 - 25}$$

$$E = -\,(8\,x + 6)^2$$
$$E = -\left((8\,x)^2 + 2 \times 8\,x \times 6 + 6^2\right)$$
$$E = -\left(64\,x^2 + 96\,x + 36\right)$$
$$\boxed{E = -64\,x^2 - 96\,x - 36}$$

$$F = \left(\frac{7}{9}\,x - \frac{7}{3}\right) \times \left(\frac{7}{3}\,x + \frac{7}{9}\right)$$
$$F = \frac{7}{9}\,x \times \frac{7}{3}\,x + \frac{7}{9}\,x \times \frac{7}{9} + -\frac{7}{3} \times \frac{7}{3}\,x + -\frac{7}{3} \times \frac{7}{9}$$
$$F = \frac{49}{27}\,x^2 + \frac{49}{81}\,x + -\frac{49}{9}\,x + -\frac{49}{27}$$
$$F = \frac{49}{27}\,x^2 + \left(\frac{49}{81} - \frac{49}{9}\right)\,x - \frac{49}{27}$$
$$F = \frac{49}{27}\,x^2 + \left(\frac{49}{81} - \frac{49_{\times 9}}{9_{\times 9}}\right)\,x - \frac{49}{27}$$
$$F = \frac{49}{27}\,x^2 + \left(\frac{49}{81} - \frac{441}{81}\right)\,x - \frac{49}{27}$$
$$\boxed{F = \frac{49}{27}\,x^2 - \frac{392}{81}\,x - \frac{49}{27}}$$

Corrigé de l'exercice 4

Développer chacune des expressions littérales suivantes :

$$A = (5\,x - 3) \times (3\,x + 5)$$
$$A = 5\,x \times 3\,x + 5\,x \times 5 - 3 \times 3\,x - 3 \times 5$$
$$A = 15\,x^2 + 25\,x - 9\,x - 15$$
$$A = 15\,x^2 + (25 - 9)\,x - 15$$
$$\boxed{A = 15\,x^2 + 16\,x - 15}$$

$$B = (7\,x - 5)^2$$
$$B = (7\,x)^2 - 2 \times 7\,x \times 5 + 5^2$$
$$\boxed{B = 49\,x^2 - 70\,x + 25}$$

$$C = (x + 5)^2$$
$$C = x^2 + 2 \times x \times 5 + 5^2$$
$$\boxed{C = x^2 + 10\,x + 25}$$

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

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

$$E = -\,(10\,x - 2)^2$$
$$E = -\left((10\,x)^2 - 2 \times 10\,x \times 2 + 2^2\right)$$
$$E = -\left(100\,x^2 - 40\,x + 4\right)$$
$$\boxed{E = -100\,x^2 + 40\,x - 4}$$

$$F = \left(\frac{7}{4}\,x + \frac{7}{3}\right)^2$$
$$F = \left(\frac{7}{4}\,x\right)^2 + 2 \times \frac{7}{4}\,x \times \frac{7}{3} + \left(\frac{7}{3}\right)^2$$
$$F = \frac{49}{16}\,x^2 + \frac{49 \times \cancel{2}}{6 \times \cancel{2}}\,x + \frac{49}{9}$$
$$\boxed{F = \frac{49}{16}\,x^2 + \frac{49}{6}\,x + \frac{49}{9}}$$

Corrigé de l'exercice 5

Développer chacune des expressions littérales suivantes :

$$A = (x + 9)^2$$
$$A = x^2 + 2 \times x \times 9 + 9^2$$
$$\boxed{A = x^2 + 18\,x + 81}$$

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

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

$$\boxed{C = 25\,x^2 - 100}$$

$$D = (7\,x - 5)^2$$
$$D = (7\,x)^2 - 2 \times 7\,x \times 5 + 5^2$$
$$\boxed{D = 49\,x^2 - 70\,x + 25}$$

$$E = -\,(x + 10) \times (x - 10)$$
$$E = -\left(x^2 - 10^2\right)$$
$$E = -\left(x^2 - 100\right)$$
$$\boxed{E = -x^2 + 100}$$

$$F = \left(\frac{6}{5}\,x + \frac{7}{6}\right) \times \left(\frac{7}{6}\,x - \frac{6}{5}\right)$$

$F = \dfrac{6}{5}\,x \times \dfrac{7}{6}\,x + \dfrac{6}{5}\,x \times \left(-\dfrac{6}{5}\right) + \dfrac{7}{6} \times \dfrac{7}{6}\,x + \dfrac{7}{6} \times \left(-\dfrac{6}{5}\right)$

$F = \dfrac{7 \times \not6}{5 \times \not6}\,x^2 + -\dfrac{36}{25}\,x + \dfrac{49}{36}\,x + -\dfrac{7 \times \not6}{5 \times \not6}$

$F = \dfrac{7 \times \not6}{5 \times \not6}\,x^2 + \left(\dfrac{-36}{25} + \dfrac{49}{36}\right)\,x - \dfrac{7 \times \not6}{5 \times \not6}$

$F = \dfrac{7}{5}\,x^2 + \left(\dfrac{-36_{\times 36}}{25_{\times 36}} + \dfrac{49_{\times 25}}{36_{\times 25}}\right)\,x - \dfrac{7}{5}$

$F = \dfrac{7}{5}\,x^2 + \left(\dfrac{-1296}{900} + \dfrac{1225}{900}\right)\,x - \dfrac{7}{5}$

$\boxed{F = \dfrac{7}{5}\,x^2 - \dfrac{71}{900}\,x - \dfrac{7}{5}}$

Corrigé de l'exercice 6

Développer chacune des expressions littérales suivantes :

$A = (6\,x + 7)^2$
$A = (6\,x)^2 + 2 \times 6\,x \times 7 + 7^2$
$\boxed{A = 36\,x^2 + 84\,x + 49}$

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

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

$D = (4\,x + 9) \times (9\,x - 4)$
$D = 4\,x \times 9\,x + 4\,x \times (-4) + 9 \times 9\,x + 9 \times (-4)$
$D = 36\,x^2 - 16\,x + 81\,x - 36$
$D = 36\,x^2 + (-16 + 81)\,x - 36$
$\boxed{D = 36\,x^2 + 65\,x - 36}$

$E = -(10\,x + 7) \times (10\,x - 7)$
$E = -\left((10\,x)^2 - 7^2\right)$

$E = -(100\,x^2 - 49)$
$\boxed{E = -100\,x^2 + 49}$

$F = \left(\dfrac{7}{10}\,x + \dfrac{9}{5}\right) \times \left(\dfrac{9}{5}\,x - \dfrac{7}{10}\right)$

$F = \dfrac{7}{10}\,x \times \dfrac{9}{5}\,x + \dfrac{7}{10}\,x \times \left(-\dfrac{7}{10}\right) + \dfrac{9}{5} \times \dfrac{9}{5}\,x + \dfrac{9}{5} \times \left(-\dfrac{7}{10}\right)$

$F = \dfrac{63}{50}\,x^2 + -\dfrac{49}{100}\,x + \dfrac{81}{25}\,x + -\dfrac{63}{50}$

$F = \dfrac{63}{50}\,x^2 + \left(\dfrac{-49}{100} + \dfrac{81}{25}\right)\,x - \dfrac{63}{50}$

$F = \dfrac{63}{50}\,x^2 + \left(\dfrac{-49}{100} + \dfrac{81_{\times 4}}{25_{\times 4}}\right)\,x - \dfrac{63}{50}$

$F = \dfrac{63}{50}\,x^2 + \left(\dfrac{-49}{100} + \dfrac{324}{100}\right)\,x - \dfrac{63}{50}$

$F = \dfrac{63}{50}\,x^2 + \dfrac{275}{100}\,x - \dfrac{63}{50}$

$F = \dfrac{63}{50}\,x^2 + \dfrac{11 \times \not{25}}{4 \times \not{25}}\,x - \dfrac{63}{50}$

$\boxed{F = \dfrac{63}{50}\,x^2 + \dfrac{11}{4}\,x - \dfrac{63}{50}}$