Corrigé de l'exercice 1

Développer et réduire chacune des expressions littérales suivantes :

$A = 2\,x \cdot 4$
$A = 2 \cdot x \cdot 4$
$A = 2 \cdot 4 \cdot x$
$\boxed{A = 8\,x}$

$B = 9\,x \cdot 2$
$B = 9 \cdot x \cdot 2$
$B = 9 \cdot 2 \cdot x$
$\boxed{B = 18\,x}$

$C = 10 \cdot (7\,x - 4) + 9\,x - 3$
$C = 10 \cdot 7\,x + 10 \cdot (-4) + 9\,x - 3$
$C = 10 \cdot 7 \cdot x - 40 + 9\,x - 3$
$C = 70\,x + 9\,x - 40 - 3$
$C = (70 + 9)\,x - 43$
$\boxed{C = 79\,x - 43}$

$D = 10 + 8 \cdot (4\,x - 10)$
$D = 10 + 8 \cdot 4\,x + 8 \cdot (-10)$
$D = 10 + 8 \cdot 4 \cdot x - 80$
$D = 10 + 32\,x - 80$
$D = 32\,x + 10 - 80$
$\boxed{D = 32\,x - 70}$

$E = 8\,x + (3\,x + 3) \cdot 6$
$E = 8\,x + 3\,x \cdot 6 + 3 \cdot 6$
$E = 8\,x + 3 \cdot x \cdot 6 + 18$
$E = 8\,x + 3 \cdot 6 \cdot x + 18$
$E = 8\,x + 18\,x + 18$
$E = (8 + 18)\,x + 18$
$\boxed{E = 26\,x + 18}$

Corrigé de l'exercice 2

Développer et réduire chacune des expressions littérales suivantes :

$A = 7\,x \cdot x$
$A = 7 \cdot x \cdot x$
$\boxed{A = 7\,x^2}$

$B = 3\,x \cdot 6\,x$

$B = 3 \cdot x \cdot 6 \cdot x$
$B = 3 \cdot 6 \cdot x \cdot x$
$\boxed{B = 18\,x^2}$

$C = (-8\,x - 8) \cdot (-x - 9) + 3\,x^2$
$C = -8\,x \cdot (-x) - 8\,x \cdot (-9) - 8 \cdot (-x) - 8 \cdot (-9) + 3\,x^2$
$C = -8 \cdot x \cdot (-1) \cdot x - 8 \cdot x \cdot (-9) - 8 \cdot (-1) \cdot x + 72 + 3\,x^2$
$C = -8 \cdot (-1) \cdot x \cdot x - 8 \cdot (-9) \cdot x + 8\,x + 3\,x^2 + 72$
$C = 8\,x^2 - (-72\,x) + 3\,x^2 + 8\,x + 72$
$C = 8\,x^2 + 72\,x + 3\,x^2 + 8\,x + 72$
$C = 8\,x^2 + 3\,x^2 + 72\,x + 8\,x + 72$
$C = (8 + 3)\,x^2 + (72 + 8)\,x + 72$
$\boxed{C = 11\,x^2 + 80\,x + 72}$

$D = (-x + 2) \cdot (x - 4) + 8\,x - 9$
$D = -x \cdot x - x \cdot (-4) + 2 \cdot x + 2 \cdot (-4) + 8\,x - 9$
$D = -1 \cdot x \cdot x - 1 \cdot x \cdot (-4) + 2\,x - 8 + 8\,x - 9$
$D = -x^2 - 1 \cdot (-4) \cdot x + 2\,x + 8\,x - 8 - 9$
$D = -x^2 - (-4\,x) + 2\,x + 8\,x - 8 - 9$
$D = -x^2 + 4\,x + 2\,x + 8\,x - 8 - 9$
$D = -x^2 + (4 + 2 + 8)\,x - 17$
$\boxed{D = -x^2 + 14\,x - 17}$

$E = (-10\,x - 3) \cdot (-10\,x - 7) + 3$
$E = -10\,x \cdot (-10\,x) - 10\,x \cdot (-7) - 3 \cdot (-10\,x) - 3 \cdot (-7) + 3$
$E = -10 \cdot x \cdot (-10) \cdot x - 10 \cdot x \cdot (-7) - 3 \cdot (-10) \cdot x + 21 + 3$
$E = -10 \cdot (-10) \cdot x \cdot x - 10 \cdot (-7) \cdot x + 30\,x + 24$

$E = 100\,x^2 - (-70\,x) + 30\,x + 24$
$E = 100\,x^2 + 70\,x + 30\,x + 24$
$E = 100\,x^2 + (70 + 30)\,x + 24$
$\boxed{E = 100\,x^2 + 100\,x + 24}$

Corrigé de l'exercice 3

Réduire, si possible, les expressions suivantes :

▶**1.** $A = -7\,x^2 \cdot 2$

$A = -7 \cdot x^2 \cdot 2$

$A = -7 \cdot 2 \cdot x^2$

$A = -14\,x^2$

▶**2.** $B = -7\,a \cdot 8$

$B = -7 \cdot a \cdot 8$

$B = -7 \cdot 8 \cdot a$

$B = -56\,a$

▶**3.** $C = -9 \cdot (-8\,x)$

$C = -9 \cdot (-8) \cdot x$

$C = 72\,x$

▶**4.** $D = -a^2 - 4\,a^2$

$D = (-1 - 4)\,a^2$

$D = -5\,a^2$

▶**5.** $E = -x^2 \cdot 4$

$E = -1 \cdot x^2 \cdot 4$

$E = -1 \cdot 4 \cdot x^2$

$E = -4\,x^2$

▶**6.** $F = -9\,t^2 \cdot 9$

$F = -9 \cdot t^2 \cdot 9$

$F = -9 \cdot 9 \cdot t^2$

$F = -81\,t^2$

▶**7.** $G = 6\,x^2 + 5\,x^2$

$G = (6 + 5)\,x^2$

$G = 11\,x^2$

▶**8.** $H = -5\,x - 6\,x^2$

$H = -6\,x^2 - 5\,x$

▶**9.** $I = -6\,t^2 - (-t^2)$

$I = (-6 + 1)\,t^2$

$I = -5\,t^2$

Corrigé de l'exercice 4

Réduire chacune des expressions littérales suivantes :

$A = 5\,x - (6\,x + 5) - 7$
$A = 5\,x - 6\,x - 5 - 7$
$A = (5 - 6)\,x - 12$
$\boxed{A = -x - 12}$

$B = 4 + 8\,x - (4\,x - 8)$
$B = 8\,x + 4 - (4\,x - 8)$
$B = 8\,x + 4 - 4\,x + 8$
$B = 8\,x - 4\,x + 4 + 8$
$B = (8 - 4)\,x + 12$
$\boxed{B = 4\,x + 12}$

$C = -4\,x - 6 + (3\,x + 2)$
$C = -4\,x - 6 + 3\,x + 2$
$C = -4\,x + 3\,x - 6 + 2$
$C = (-4 + 3)\,x - 4$
$\boxed{C = -x - 4}$

$D = 6\,x + (6\,x - 8) - 6$
$D = 6\,x + 6\,x - 8 - 6$
$D = (6 + 6)\,x - 14$
$\boxed{D = 12\,x - 14}$

$E = 2 - (5\,x + 6) - 10\,x$
$E = 2 - 5\,x - 6 - 10\,x$
$E = -5\,x - 10\,x + 2 - 6$
$E = (-5 - 10)\,x - 4$
$\boxed{E = -15\,x - 4}$

$F = -(-8\,x - 9) - 7\,x + 3$
$F = 8\,x + 9 - 7\,x + 3$
$F = 8\,x - 7\,x + 9 + 3$
$F = (8 - 7)\,x + 12$
$\boxed{F = x + 12}$

Corrigé de l'exercice 5

Développer chacune des expressions littérales suivantes :

$A = (10\,x - 5)^2$

$A = (10\,x)^2 - 2 \cdot 10\,x \cdot 5 + 5^2$

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

$B = (x + 4) \cdot (x - 4)$

$B = x^2 - 4^2$

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

$C = (4\,x + 6) \cdot (6\,x - 4)$

$C = 4\,x \cdot 6\,x + 4\,x \cdot (-4) + 6 \cdot 6\,x + 6 \cdot (-4)$

$C = 24\,x^2 - 16\,x + 36\,x - 24$

$C = 24\,x^2 + (-16 + 36)\,x - 24$

$\boxed{C = 24\,x^2 + 20\,x - 24}$

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

$D = (5\,x)^2 + 2 \cdot 5\,x \cdot 5 + 5^2$

$\boxed{D = 25\,x^2 + 50\,x + 25}$

$E = -\,(5\,x - 10) \cdot (10\,x + 5)$

$E = -\,(5\,x \cdot 10\,x + 5\,x \cdot 5 - 10 \cdot 10\,x - 10 \cdot 5)$

$E = -\,(50\,x^2 + 25\,x - 100\,x - 50)$

$E = -\,(50\,x^2 + (25 - 100)\,x - 50)$

$E = -\,(50\,x^2 - 75\,x - 50)$

$\boxed{E = -50\,x^2 + 75\,x + 50}$

$F = \left(\dfrac{9}{8}\,x + \dfrac{2}{5}\right) \cdot \left(\dfrac{9}{8}\,x - \dfrac{2}{5}\right)$

$F = \left(\dfrac{9}{8}\,x\right)^2 - \left(\dfrac{2}{5}\right)^2$

$\boxed{F = \dfrac{81}{64}\,x^2 - \dfrac{4}{25}}$