Corrigé de l'exercice 1

Développer et réduire chacune des expressions littérales suivantes :

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

$B = 4\,x \times 4\,x$

$B = 4 \times x \times 4 \times x$
$B = 4 \times 4 \times x \times x$
$\boxed{B = 16\,x^2}$

$C = -3\,x^2 + (-6\,x - 7) \times (-5\,x - 9)$
$C = -3\,x^2 - 6\,x \times (-5\,x) - 6\,x \times (-9) - 7 \times (-5\,x) - 7 \times (-9)$
$C = -3\,x^2 - 6 \times x \times (-5) \times x - 6 \times x \times (-9) - 7 \times (-5) \times x + 63$
$C = -3\,x^2 - 6 \times (-5) \times x \times x - 6 \times (-9) \times x + 35\,x + 63$
$C = -3\,x^2 - (-30\,x^2) - (-54\,x) + 35\,x + 63$
$C = 27\,x^2 + 54\,x + 35\,x + 63$
$C = 27\,x^2 + (54 + 35)\,x + 63$
$\boxed{C = 27\,x^2 + 89\,x + 63}$

$D = 2 + (4\,x + 10) \times (6\,x - 6)$
$D = 2 + 4\,x \times 6\,x + 4\,x \times (-6) + 10 \times 6\,x + 10 \times (-6)$
$D = 2 + 4 \times x \times 6 \times x + 4 \times x \times (-6) + 10 \times 6 \times x - 60$
$D = 2 + 4 \times 6 \times x \times x + 4 \times (-6) \times x + 60\,x - 60$
$D = 2 + 24\,x^2 - 24\,x + 60\,x - 60$
$D = 24\,x^2 - 24\,x + 60\,x + 2 - 60$
$D = 24\,x^2 + (-24 + 60)\,x - 58$
$\boxed{D = 24\,x^2 + 36\,x - 58}$

$E = (10\,x + 9) \times (-4\,x + 10) + 8\,x - 10$
$E = 10\,x \times (-4\,x) + 10\,x \times 10 + 9 \times (-4\,x) + 9 \times 10 + 8\,x - 10$
$E = 10 \times x \times (-4) \times x + 10 \times x \times 10 + 9 \times (-4) \times x + 90 + 8\,x - 10$
$E = 10 \times (-4) \times x \times x + 10 \times 10 \times x - 36\,x + 8\,x + 90 - 10$
$E = -40\,x^2 + 100\,x\,(-36 + 8)\,x + 80$
$E = -40\,x^2 + (100 + (-36) + 8)\,x + 80$
$\boxed{E = -40\,x^2 + 72\,x + 80}$

Corrigé de l'exercice 2

Développer et réduire chacune des expressions littérales suivantes :

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

$B = 2\,x \times 9\,x$

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

$C = x - 10 + (8\,x + 6) \times (7\,x - 5)$
$C = x - 10 + 8\,x \times 7\,x + 8\,x \times (-5) + 6 \times 7\,x + 6 \times (-5)$
$C = x - 10 + 8 \times x \times 7 \times x + 8 \times x \times (-5) + 6 \times 7 \times x - 30$
$C = x - 10 + 8 \times 7 \times x \times x + 8 \times (-5) \times x + 42\,x - 30$
$C = x - 10 + 56\,x^2 - 40\,x + 42\,x - 30$
$C = 56\,x^2 + x - 40\,x + 42\,x - 10 - 30$
$C = 56\,x^2 + (1 - 40 + 42)\,x - 40$

$$\boxed{C = 56\,x^2 + 3\,x - 40}$$

$D = 10 + (-7\,x + 4) \times (-9\,x - 6)$
$D = 10 - 7\,x \times (-9\,x) - 7\,x \times (-6) + 4 \times (-9\,x) + 4 \times (-6)$
$D = 10 - 7 \times x \times (-9) \times x - 7 \times x \times (-6) + 4 \times (-9) \times x - 24$
$D = 10 - 7 \times (-9) \times x \times x - 7 \times (-6) \times x - 36\,x - 24$
$D = 10 - (-63\,x^2) - (-42\,x) - 36\,x - 24$
$D = 63\,x^2 + 42\,x + 10 - 36\,x - 24$
$D = 63\,x^2 + 42\,x - 36\,x + 10 - 24$
$D = 63\,x^2 + (42 - 36)\,x - 14$
$$\boxed{D = 63\,x^2 + 6\,x - 14}$$

$E = (-9\,x - 6) \times (6\,x + 9) + 2\,x^2$
$E = -9\,x \times 6\,x - 9\,x \times 9 - 6 \times 6\,x - 6 \times 9 + 2\,x^2$
$E = -9 \times x \times 6 \times x - 9 \times x \times 9 - 6 \times 6 \times x - 54 + 2\,x^2$
$E = -9 \times 6 \times x \times x - 9 \times 9 \times x - 36\,x + 2\,x^2 - 54$
$E = -54\,x^2 - 81\,x + 2\,x^2 - 36\,x - 54$
$E = -54\,x^2 + 2\,x^2 - 81\,x - 36\,x - 54$
$E = (-54 + 2)\,x^2 + (-81 - 36)\,x - 54$
$$\boxed{E = -52\,x^2 - 117\,x - 54}$$

Corrigé de l'exercice 3

Développer et réduire chacune des expressions littérales suivantes :

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

$B = 9\,x \times 3\,x$
$B = 9 \times x \times 3 \times x$
$B = 9 \times 3 \times x \times x$
$$\boxed{B = 27\,x^2}$$

$C = (-5\,x + 10) \times (-x + 8) - 7\,x + 3$
$C = -5\,x \times (-x) - 5\,x \times 8 + 10 \times (-x) + 10 \times 8 - 7\,x + 3$
$C = -5 \times x \times (-1) \times x - 5 \times x \times 8 + 10 \times (-1) \times x + 80 - 7\,x + 3$
$C = -5 \times (-1) \times x \times x - 5 \times 8 \times x - 10\,x - 7\,x + 80 + 3$
$C = 5\,x^2 - 40\,x\,(-10 - 7)\,x + 83$
$C = 5\,x^2 + (-40 + (-10) - 7)\,x + 83$
$$\boxed{C = 5\,x^2 - 57\,x + 83}$$

$D = (2\,x - 10) \times (-4\,x - 6) - 9$
$D = 2\,x \times (-4\,x) + 2\,x \times (-6) - 10 \times (-4\,x) - 10 \times (-6) - 9$
$D = 2 \times x \times (-4) \times x + 2 \times x \times (-6) - 10 \times (-4) \times x + 60 - 9$
$D = 2 \times (-4) \times x \times x + 2 \times (-6) \times x + 40\,x + 51$
$D = -8\,x^2 - 12\,x + 40\,x + 51$
$D = -8\,x^2 + (-12 + 40)\,x + 51$
$$\boxed{D = -8\,x^2 + 28\,x + 51}$$

$E = (-2\,x - 4) \times (3\,x + 2) + 4\,x^2$
$E = -2\,x \times 3\,x - 2\,x \times 2 - 4 \times 3\,x - 4 \times 2 + 4\,x^2$
$E = -2 \times x \times 3 \times x - 2 \times x \times 2 - 4 \times 3 \times x - 8 + 4\,x^2$
$E = -2 \times 3 \times x \times x - 2 \times 2 \times x - 12\,x + 4\,x^2 - 8$

$E = -6\,x^2 - 4\,x + 4\,x^2 - 12\,x - 8$
$E = -6\,x^2 + 4\,x^2 - 4\,x - 12\,x - 8$
$E = (-6 + 4)\,x^2 + (-4 - 12)\,x - 8$
$\boxed{E = -2\,x^2 - 16\,x - 8}$

Corrigé de l'exercice 4

Développer et réduire chacune des expressions littérales suivantes :

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

$B = 3\,x \times 5\,x$

$B = 3 \times x \times 5 \times x$
$B = 3 \times 5 \times x \times x$
$\boxed{B = 15\,x^2}$

$C = 3\,x^2 + (3\,x - 5) \times (-7\,x - 10)$
$C = 3\,x^2 + 3\,x \times (-7\,x) + 3\,x \times (-10) - 5 \times (-7\,x) - 5 \times (-10)$
$C = 3\,x^2 + 3 \times x \times (-7) \times x + 3 \times x \times (-10) - 5 \times (-7) \times x + 50$
$C = 3\,x^2 + 3 \times (-7) \times x \times x + 3 \times (-10) \times x + 35\,x + 50$
$C = 3\,x^2 - 21\,x^2 - 30\,x + 35\,x + 50$
$C = (3 - 21)\,x^2 + (-30 + 35)\,x + 50$
$\boxed{C = -18\,x^2 + 5\,x + 50}$

$D = 3 + (3\,x + 2) \times (7\,x - 6)$
$D = 3 + 3\,x \times 7\,x + 3\,x \times (-6) + 2 \times 7\,x + 2 \times (-6)$
$D = 3 + 3 \times x \times 7 \times x + 3 \times x \times (-6) + 2 \times 7 \times x - 12$
$D = 3 + 3 \times 7 \times x \times x + 3 \times (-6) \times x + 14\,x - 12$
$D = 3 + 21\,x^2 - 18\,x + 14\,x - 12$
$D = 21\,x^2 - 18\,x + 14\,x + 3 - 12$
$D = 21\,x^2 + (-18 + 14)\,x - 9$
$\boxed{D = 21\,x^2 - 4\,x - 9}$

$E = (-5\,x - 3) \times (-7\,x + 6) + 2\,x + 7$
$E = -5\,x \times (-7\,x) - 5\,x \times 6 - 3 \times (-7\,x) - 3 \times 6 + 2\,x + 7$
$E = -5 \times x \times (-7) \times x - 5 \times x \times 6 - 3 \times (-7) \times x - 18 + 2\,x + 7$
$E = -5 \times (-7) \times x \times x - 5 \times 6 \times x + 21\,x + 2\,x - 18 + 7$
$E = 35\,x^2 - 30\,x + (21 + 2)\,x - 11$
$E = 35\,x^2 + (-30 + 21 + 2)\,x - 11$
$\boxed{E = 35\,x^2 - 7\,x - 11}$

Corrigé de l'exercice 5

Développer et réduire chacune des expressions littérales suivantes :

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

$B = 4\,x \times 9\,x$
$B = 4 \times x \times 9 \times x$
$B = 4 \times 9 \times x \times x$
$\boxed{B = 36\,x^2}$

$C = 3\,x^2 + (3\,x - 3) \times (-8\,x + 2)$
$C = 3\,x^2 + 3\,x \times (-8\,x) + 3\,x \times 2 - 3 \times (-8\,x) - 3 \times 2$

$C = 3\,x^2 + 3 \times x \times (-8) \times x + 3 \times x \times 2 - 3 \times (-8) \times x - 6$

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

$C = 3\,x^2 - 24\,x^2 + 6\,x + 24\,x - 6$

$C = (3 - 24)\,x^2 + (6 + 24)\,x - 6$

$\boxed{C = -21\,x^2 + 30\,x - 6}$

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

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

$D = -7 - 2 \times x \times 2 \times x - 2 \times x \times (-7) + 6 \times 2 \times x - 42$

$D = -7 - 2 \times 2 \times x \times x - 2 \times (-7) \times x + 12\,x - 42$

$D = -7 - 4\,x^2 - (-14\,x) + 12\,x - 42$

$D = -4\,x^2 + 14\,x - 7 + 12\,x - 42$

$D = -4\,x^2 + 14\,x + 12\,x - 7 - 42$

$D = -4\,x^2 + (14 + 12)\,x - 49$

$\boxed{D = -4\,x^2 + 26\,x - 49}$

$E = (3\,x - 4) \times (-2\,x + 1) - 9\,x + 4$

$E = 3\,x \times (-2\,x) + 3\,x \times 1 - 4 \times (-2\,x) - 4 \times 1 - 9\,x + 4$

$E = 3 \times x \times (-2) \times x + 3 \times x \times 1 - 4 \times (-2) \times x - 4 - 9\,x + 4$

$E = 3 \times (-2) \times x \times x + 3 \times x + 8\,x - 9\,x - 4 + 4$

$E = -6\,x^2 + 3\,x\,(8 - 9)\,x$

$E = -6\,x^2 + (3 + 8 - 9)\,x$

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

Corrigé de l'exercice 6

Développer et réduire chacune des expressions littérales suivantes :

$A = 7\,x \times x$

$A = 7 \times x \times x$

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

$B = 4\,x \times 9\,x$

$B = 4 \times x \times 9 \times x$

$B = 4 \times 9 \times x \times x$

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

$C = 9\,x^2 + (-9\,x + 6) \times (9\,x + 1)$

$C = 9\,x^2 - 9\,x \times 9\,x - 9\,x \times 1 + 6 \times 9\,x + 6 \times 1$

$C = 9\,x^2 - 9 \times x \times 9 \times x - 9 \times x \times 1 + 6 \times 9 \times x + 6$

$C = 9\,x^2 - 9 \times 9 \times x \times x - 9 \times x + 54\,x + 6$

$C = 9\,x^2 - 81\,x^2 - 9\,x + 54\,x + 6$

$C = -72\,x^2 - 9\,x + 54\,x + 6$

$C = -72\,x^2 + (-9 + 54)\,x + 6$

$\boxed{C = -72\,x^2 + 45\,x + 6}$

$D = (-10\,x + 5) \times (9\,x - 2) - 3\,x + 2$

$D = -10\,x \times 9\,x - 10\,x \times (-2) + 5 \times 9\,x + 5 \times (-2) - 3\,x + 2$

$D = -10 \times x \times 9 \times x - 10 \times x \times (-2) + 5 \times 9 \times x - 10 - 3\,x + 2$

$D = -10 \times 9 \times x \times x - 10 \times (-2) \times x + 45\,x - 3\,x - 10 + 2$

$D = -90\,x^2 - (-20\,x) + (45 - 3)\,x - 8$

$D = -90\,x^2 + 20\,x + (45 - 3)\,x - 8$

$D = -90\,x^2 + (20 + 45 - 3)\,x - 8$

$\boxed{D = -90\,x^2 + 62\,x - 8}$

$E = (-10\,x - 9) \times (8\,x - 2) + 2$

$E = -10\,x \times 8\,x - 10\,x \times (-2) - 9 \times 8\,x - 9 \times (-2) + 2$

$E = -10 \times x \times 8 \times x - 10 \times x \times (-2) - 9 \times 8 \times x + 18 + 2$

$E = -10 \times 8 \times x \times x - 10 \times (-2) \times x - 72\,x + 20$

$E = -80\,x^2 - (-20\,x) - 72\,x + 20$

$E = -80\,x^2 + 20\,x - 72\,x + 20$

$E = -80\,x^2 + (20 - 72)\,x + 20$

$\boxed{E = -80\,x^2 - 52\,x + 20}$