Exercice 1

Développer et réduire chacune des expressions littérales suivantes :

$A = 8\,x \times x$
$B = 6\,x \times 7\,x$
$C = (5\,x + 8) \times (10\,x + 3) + 6\,x^2$

$D = (10\,x - 8) \times (7\,x - 7) + 2$
$E = (2\,x - 8) \times (-5\,x - 6) + 4\,x - 5$

Exercice 2

Développer et réduire chacune des expressions littérales suivantes :

$A = 5\,x \times x$
$B = 4\,x \times 3\,x$
$C = 3\,x^2 + (5\,x - 7) \times (x + 5)$

$D = (-7\,x + 3) \times (10\,x + 3) + 8$
$E = (10\,x - 9) \times (-4\,x - 1) - 4\,x - 7$

Exercice 3

Développer et réduire chacune des expressions littérales suivantes :

$A = x \times 6\,x$
$B = 2\,x \times 8\,x$
$C = (-7\,x + 9) \times (-7\,x + 5) - 9$

$D = (5\,x + 1) \times (4\,x + 4) + 5\,x^2$
$E = (2\,x - 5) \times (9\,x - 10) + 9\,x + 7$

Exercice 4

Développer et réduire chacune des expressions littérales suivantes :

$A = 5\,x \times x$
$B = 8\,x \times 7\,x$
$C = (-4\,x + 10) \times (-3\,x + 7) + 4\,x^2$

$D = -4 + (9\,x - 9) \times (2\,x + 6)$
$E = (-2\,x + 10) \times (5\,x - 2) - 5\,x + 6$

Exercice 5

Développer et réduire chacune des expressions littérales suivantes :

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

$D = -3\,x - 4 + (-10\,x + 4) \times (2\,x + 4)$
$E = (-x + 10) \times (-7\,x + 10) + 6$

Exercice 6

Développer et réduire chacune des expressions littérales suivantes :

$A = 5\,x \times x$
$B = 6\,x \times 7\,x$
$C = 8\,x^2 + (-4\,x - 4) \times (-2\,x - 1)$

$D = 10\,x + 7 + (-7\,x - 9) \times (9\,x - 7)$
$E = 10 + (-x + 9) \times (5\,x + 1)$

Corrigé de l'exercice 1

Développer et réduire chacune des expressions littérales suivantes :

$A = 8\,x \times x$
$A = 8 \times x \times x$

$$A = 8\,x^2$$

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

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

$$B = 42\,x^2$$

$C = (5\,x + 8) \times (10\,x + 3) + 6\,x^2$
$C = 5\,x \times 10\,x + 5\,x \times 3 + 8 \times 10\,x + 8 \times 3 + 6\,x^2$
$C = 5 \times x \times 10 \times x + 5 \times x \times 3 + 8 \times 10 \times x + 24 + 6\,x^2$
$C = 5 \times 10 \times x \times x + 5 \times 3 \times x + 80\,x + 6\,x^2 + 24$
$C = 50\,x^2 + 15\,x + 6\,x^2 + 80\,x + 24$
$C = 50\,x^2 + 6\,x^2 + 15\,x + 80\,x + 24$
$C = (50 + 6)\,x^2 + (15 + 80)\,x + 24$

$$C = 56\,x^2 + 95\,x + 24$$

$D = (10\,x - 8) \times (7\,x - 7) + 2$
$D = 10\,x \times 7\,x + 10\,x \times (-7) - 8 \times 7\,x - 8 \times (-7) + 2$
$D = 10 \times x \times 7 \times x + 10 \times x \times (-7) - 8 \times 7 \times x + 56 + 2$
$D = 10 \times 7 \times x \times x + 10 \times (-7) \times x - 56\,x + 58$
$D = 70\,x^2 - 70\,x - 56\,x + 58$
$D = 70\,x^2 + (-70 - 56)\,x + 58$

$$D = 70\,x^2 - 126\,x + 58$$

$E = (2\,x - 8) \times (-5\,x - 6) + 4\,x - 5$
$E = 2\,x \times (-5\,x) + 2\,x \times (-6) - 8 \times (-5\,x) - 8 \times (-6) + 4\,x - 5$
$E = 2 \times x \times (-5) \times x + 2 \times x \times (-6) - 8 \times (-5) \times x + 48 + 4\,x - 5$
$E = 2 \times (-5) \times x \times x + 2 \times (-6) \times x + 40\,x + 4\,x + 48 - 5$
$E = -10\,x^2 - 12\,x + (40 + 4)\,x + 43$
$E = -10\,x^2 + (-12 + 40 + 4)\,x + 43$

$$E = -10\,x^2 + 32\,x + 43$$

Corrigé de l'exercice 2

Développer et réduire chacune des expressions littérales suivantes :

$A = 5\,x \times x$
$A = 5 \times x \times x$

$$A = 5\,x^2$$

$B = 4\,x \times 3\,x$

$B = 4 \times x \times 3 \times x$
$B = 4 \times 3 \times x \times x$

$$B = 12\,x^2$$

$C = 3\,x^2 + (5\,x - 7) \times (x + 5)$
$C = 3\,x^2 + 5\,x \times x + 5\,x \times 5 - 7 \times x - 7 \times 5$
$C = 3\,x^2 + 5 \times x \times x + 5 \times x \times 5 - 7\,x - 35$
$C = 3\,x^2 + 5\,x^2 + 5 \times 5 \times x - 7\,x - 35$
$C = (3 + 5)\,x^2 + 25\,x - 7\,x - 35$

$C = (3 + 5)\, x^2 + (25 - 7)\, x - 35$

$$C = 8\, x^2 + 18\, x - 35$$

$D = (-7\, x + 3) \times (10\, x + 3) + 8$
$D = -7\, x \times 10\, x - 7\, x \times 3 + 3 \times 10\, x + 3 \times 3 + 8$
$D = -7 \times x \times 10 \times x - 7 \times x \times 3 + 3 \times 10 \times x + 9 + 8$
$D = -7 \times 10 \times x \times x - 7 \times 3 \times x + 30\, x + 17$
$D = -70\, x^2 - 21\, x + 30\, x + 17$
$D = -70\, x^2 + (-21 + 30)\, x + 17$

$$D = -70\, x^2 + 9\, x + 17$$

$E = (10\, x - 9) \times (-4\, x - 1) - 4\, x - 7$
$E = 10\, x \times (-4\, x) + 10\, x \times (-1) - 9 \times (-4\, x) - 9 \times (-1) - 4\, x - 7$
$E = 10 \times x \times (-4) \times x + 10 \times x \times (-1) - 9 \times (-4) \times x + 9 - 4\, x - 7$
$E = 10 \times (-4) \times x \times x + 10 \times (-1) \times x + 36\, x - 4\, x + 9 - 7$
$E = -40\, x^2 - 10\, x + (36 - 4)\, x + 2$
$E = -40\, x^2 + (-10 + 36 - 4)\, x + 2$

$$E = -40\, x^2 + 22\, x + 2$$

Corrigé de l'exercice 3

Développer et réduire chacune des expressions littérales suivantes :

$A = x \times 6\, x$
$A = x \times 6 \times x$
$A = 6 \times x \times x$

$$A = 6\, x^2$$

$B = 2\, x \times 8\, x$
$B = 2 \times x \times 8 \times x$
$B = 2 \times 8 \times x \times x$

$$B = 16\, x^2$$

$C = (-7\, x + 9) \times (-7\, x + 5) - 9$
$C = -7\, x \times (-7\, x) - 7\, x \times 5 + 9 \times (-7\, x) + 9 \times 5 - 9$
$C = -7 \times x \times (-7) \times x - 7 \times x \times 5 + 9 \times (-7) \times x + 45 - 9$
$C = -7 \times (-7) \times x \times x - 7 \times 5 \times x - 63\, x + 36$
$C = 49\, x^2 - 35\, x - 63\, x + 36$
$C = 49\, x^2 + (-35 - 63)\, x + 36$

$$C = 49\, x^2 - 98\, x + 36$$

$D = (5\, x + 1) \times (4\, x + 4) + 5\, x^2$
$D = 5\, x \times 4\, x + 5\, x \times 4 + 1 \times 4\, x + 1 \times 4 + 5\, x^2$
$D = 5 \times x \times 4 \times x + 5 \times x \times 4 + 1 \times 4 \times x + 4 + 5\, x^2$
$D = 5 \times 4 \times x \times x + 5 \times 4 \times x + 4\, x + 5\, x^2 + 4$
$D = 20\, x^2 + 20\, x + 5\, x^2 + 4\, x + 4$
$D = 20\, x^2 + 5\, x^2 + 20\, x + 4\, x + 4$
$D = (20 + 5)\, x^2 + (20 + 4)\, x + 4$

$$D = 25\, x^2 + 24\, x + 4$$

$E = (2\, x - 5) \times (9\, x - 10) + 9\, x + 7$
$E = 2\, x \times 9\, x + 2\, x \times (-10) - 5 \times 9\, x - 5 \times (-10) + 9\, x + 7$
$E = 2 \times x \times 9 \times x + 2 \times x \times (-10) - 5 \times 9 \times x + 50 + 9\, x + 7$

$E = 2 \times 9 \times x \times x + 2 \times (-10) \times x - 45\,x + 9\,x + 50 + 7$
$E = 18\,x^2 - 20\,x + (-45 + 9)\,x + 57$
$E = 18\,x^2 + (-20 + (-45) + 9)\,x + 57$

$$\boxed{E = 18\,x^2 - 56\,x + 57}$$

Corrigé de l'exercice 4

Développer et réduire chacune des expressions littérales suivantes :

$A = 5\,x \times x$
$A = 5 \times x \times x$

$$\boxed{A = 5\,x^2}$$

$B = 8\,x \times 7\,x$

$B = 8 \times x \times 7 \times x$
$B = 8 \times 7 \times x \times x$

$$\boxed{B = 56\,x^2}$$

$C = (-4\,x + 10) \times (-3\,x + 7) + 4\,x^2$
$C = -4\,x \times (-3\,x) - 4\,x \times 7 + 10 \times (-3\,x) + 10 \times 7 + 4\,x^2$
$C = -4 \times x \times (-3) \times x - 4 \times x \times 7 + 10 \times (-3) \times x + 70 + 4\,x^2$
$C = -4 \times (-3) \times x \times x - 4 \times 7 \times x - 30\,x + 4\,x^2 + 70$
$C = 12\,x^2 - 28\,x + 4\,x^2 - 30\,x + 70$
$C = 12\,x^2 + 4\,x^2 - 28\,x - 30\,x + 70$
$C = (12 + 4)\,x^2 + (-28 - 30)\,x + 70$

$$\boxed{C = 16\,x^2 - 58\,x + 70}$$

$D = -4 + (9\,x - 9) \times (2\,x + 6)$
$D = -4 + 9\,x \times 2\,x + 9\,x \times 6 - 9 \times 2\,x - 9 \times 6$
$D = -4 + 9 \times x \times 2 \times x + 9 \times x \times 6 - 9 \times 2 \times x - 54$
$D = -4 + 9 \times 2 \times x \times x + 9 \times 6 \times x - 18\,x - 54$
$D = -4 + 18\,x^2 + 54\,x - 18\,x - 54$
$D = 18\,x^2 + 54\,x - 18\,x - 4 - 54$
$D = 18\,x^2 + (54 - 18)\,x - 58$

$$\boxed{D = 18\,x^2 + 36\,x - 58}$$

$E = (-2\,x + 10) \times (5\,x - 2) - 5\,x + 6$
$E = -2\,x \times 5\,x - 2\,x \times (-2) + 10 \times 5\,x + 10 \times (-2) - 5\,x + 6$
$E = -2 \times x \times 5 \times x - 2 \times x \times (-2) + 10 \times 5 \times x - 20 - 5\,x + 6$
$E = -2 \times 5 \times x \times x - 2 \times (-2) \times x + 50\,x - 5\,x - 20 + 6$
$E = -10\,x^2 - (-4\,x) + (50 - 5)\,x - 14$
$E = -10\,x^2 + 4\,x + (50 - 5)\,x - 14$
$E = -10\,x^2 + (4 + 50 - 5)\,x - 14$

$$\boxed{E = -10\,x^2 + 49\,x - 14}$$

Corrigé de l'exercice 5

Développer et réduire chacune des expressions littérales suivantes :

$A = 8\,x \times x$
$A = 8 \times x \times x$

$$A = 8\,x^2$$

$B = 6\,x \times 5\,x$

$B = 6 \times x \times 5 \times x$
$B = 6 \times 5 \times x \times x$

$$B = 30\,x^2$$

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

$$C = -5\,x^2 - 27\,x - 24$$

$D = -3\,x - 4 + (-10\,x + 4) \times (2\,x + 4)$
$D = -3\,x - 4 - 10\,x \times 2\,x - 10\,x \times 4 + 4 \times 2\,x + 4 \times 4$
$D = -3\,x - 4 - 10 \times x \times 2 \times x - 10 \times x \times 4 + 4 \times 2 \times x + 16$
$D = -3\,x - 4 - 10 \times 2 \times x \times x - 10 \times 4 \times x + 8\,x + 16$
$D = -3\,x - 4 - 20\,x^2 - 40\,x + 8\,x + 16$
$D = -20\,x^2 - 3\,x - 40\,x - 4 + 8\,x + 16$
$D = -20\,x^2 - 3\,x - 40\,x + 8\,x - 4 + 16$
$D = -20\,x^2 + (-3 - 40 + 8)\,x + 12$

$$D = -20\,x^2 - 35\,x + 12$$

$E = (-x + 10) \times (-7\,x + 10) + 6$
$E = -x \times (-7\,x) - x \times 10 + 10 \times (-7\,x) + 10 \times 10 + 6$
$E = -1 \times x \times (-7) \times x - 1 \times x \times 10 + 10 \times (-7) \times x + 100 + 6$
$E = -1 \times (-7) \times x \times x - 1 \times 10 \times x - 70\,x + 106$
$E = 7\,x^2 - 10\,x - 70\,x + 106$
$E = 7\,x^2 + (-10 - 70)\,x + 106$

$$E = 7\,x^2 - 80\,x + 106$$

Corrigé de l'exercice 6

Développer et réduire chacune des expressions littérales suivantes :

$A = 5\,x \times x$
$A = 5 \times x \times x$

$$A = 5\,x^2$$

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

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

$$B = 42\,x^2$$

$C = 8\,x^2 + (-4\,x - 4) \times (-2\,x - 1)$
$C = 8\,x^2 - 4\,x \times (-2\,x) - 4\,x \times (-1) - 4 \times (-2\,x) - 4 \times (-1)$
$C = 8\,x^2 - 4 \times x \times (-2) \times x - 4 \times x \times (-1) - 4 \times (-2) \times x + 4$
$C = 8\,x^2 - 4 \times (-2) \times x \times x - 4 \times (-1) \times x + 8\,x + 4$
$C = 8\,x^2 - (-8\,x^2) - (-4\,x) + 8\,x + 4$
$C = 16\,x^2 + 4\,x + 8\,x + 4$
$C = 16\,x^2 + (4 + 8)\,x + 4$

$$C = 16\,x^2 + 12\,x + 4$$

$D = 10\,x + 7 + (-7\,x - 9) \times (9\,x - 7)$
$D = 10\,x + 7 - 7\,x \times 9\,x - 7\,x \times (-7) - 9 \times 9\,x - 9 \times (-7)$
$D = 10\,x + 7 - 7 \times x \times 9 \times x - 7 \times x \times (-7) - 9 \times 9 \times x + 63$
$D = 10\,x + 7 - 7 \times 9 \times x \times x - 7 \times (-7) \times x - 81\,x + 63$
$D = 10\,x + 7 - 63\,x^2 - (-49\,x) - 81\,x + 63$
$D = -63\,x^2 + 10\,x + 49\,x + 7 - 81\,x + 63$
$D = -63\,x^2 + 10\,x + 49\,x - 81\,x + 7 + 63$
$D = -63\,x^2 + (10 + 49 - 81)\,x + 70$

$$D = -63\,x^2 - 22\,x + 70$$

$E = 10 + (-x + 9) \times (5\,x + 1)$
$E = 10 - x \times 5\,x - x \times 1 + 9 \times 5\,x + 9 \times 1$
$E = 10 - 1 \times x \times 5 \times x - 1 \times x \times 1 + 9 \times 5 \times x + 9$
$E = 10 - 1 \times 5 \times x \times x - 1 \times x + 45\,x + 9$
$E = 10 - 5\,x^2 - x + 45\,x + 9$
$E = -5\,x^2 - x + 10 + 45\,x + 9$
$E = -5\,x^2 - x + 45\,x + 10 + 9$
$E = -5\,x^2 + (-1 + 45)\,x + 19$

$$E = -5\,x^2 + 44\,x + 19$$