

Corrigé de l'exercice 1

Développer et réduire chacune des expressions littérales suivantes :

$$A = 9 \times 3x$$

$$A = 9 \times 3 \times x$$

$$A = 27x$$

$$B = 3 \times 2x$$

$$B = 3 \times 2 \times x$$

$$B = 6x$$

$$C = (4x - 7) \times 6 - 7$$

$$C = 4x \times 6 - 7 \times 6 - 7$$

$$C = 4 \times x \times 6 - 42 - 7$$

$$C = 4 \times 6 \times x - 49$$

$$C = 24x - 49$$

$$D = (-8x + 9) \times 10 + 9x$$

$$D = -8x \times 10 + 9 \times 10 + 9x$$

$$D = -8 \times x \times 10 + 90 + 9x$$

$$D = -8 \times 10 \times x + 9x + 90$$

$$D = -80x + 9x + 90$$

$$D = (-80 + 9)x + 90$$

$$D = -71x + 90$$

$$E = 7 \times (9x - 10) - 3x - 4$$

$$E = 7 \times 9x + 7 \times (-10) - 3x - 4$$

$$E = 7 \times 9 \times x - 70 - 3x - 4$$

$$E = 63x - 3x - 70 - 4$$

$$E = (63 - 3)x - 74$$

$$E = 60x - 74$$

Corrigé de l'exercice 2

Développer et réduire chacune des expressions littérales suivantes :

$$A = x \times 9x$$

$$A = x \times 9 \times x$$

$$A = 9 \times x \times x$$

$$A = 9x^2$$

$$B = 2x \times 2x$$

$$B = 2 \times x \times 2 \times x$$

$$B = 2 \times 2 \times x \times x$$

$$B = 4x^2$$

$$C = 10x - 8 + (6x + 4) \times (-2x - 8)$$

$$C = 10x - 8 + 6x \times (-2x) + 6x \times (-8) + 4 \times (-2x) + 4 \times (-8)$$

$$C = 10x - 8 + 6 \times x \times (-2) \times x + 6 \times x \times (-8) + 4 \times (-2) \times x - 32$$

$$C = 10x - 8 + 6 \times (-2) \times x \times x + 6 \times (-8) \times x - 8x - 32$$

$$C = 10x - 8 - 12x^2 - 48x - 8x - 32$$

$$C = -12x^2 + 10x - 48x - 8x - 8 - 32$$

$$C = -12x^2 + (10 - 48 - 8)x - 40$$

$$C = -12x^2 - 46x - 40$$

$$D = (-x - 1) \times (-10x + 2) + 4$$

$$D = -x \times (-10x) - x \times 2 - 1 \times (-10x) - 1 \times 2 + 4$$

$$D = -1 \times x \times (-10) \times x - 1 \times x \times 2 - 1 \times (-10) \times x - 2 + 4$$

$$D = -1 \times (-10) \times x \times x - 1 \times 2 \times x + 10x + 2$$

$$D = 10x^2 - 2x + 10x + 2$$

$$D = 10x^2 + (-2 + 10)x + 2$$

$$D = 10x^2 + 8x + 2$$

$$E = (2x + 7) \times (6x - 8) - 4x^2$$

$$E = 2x \times 6x + 2x \times (-8) + 7 \times 6x + 7 \times (-8) - 4x^2$$

$$E = 2 \times x \times 6 \times x + 2 \times x \times (-8) + 7 \times 6 \times x - 56 - 4x^2$$

$$E = 2 \times 6 \times x \times x + 2 \times (-8) \times x + 42x - 4x^2 - 56$$

$$E = 12x^2 - 16x - 4x^2 + 42x - 56$$

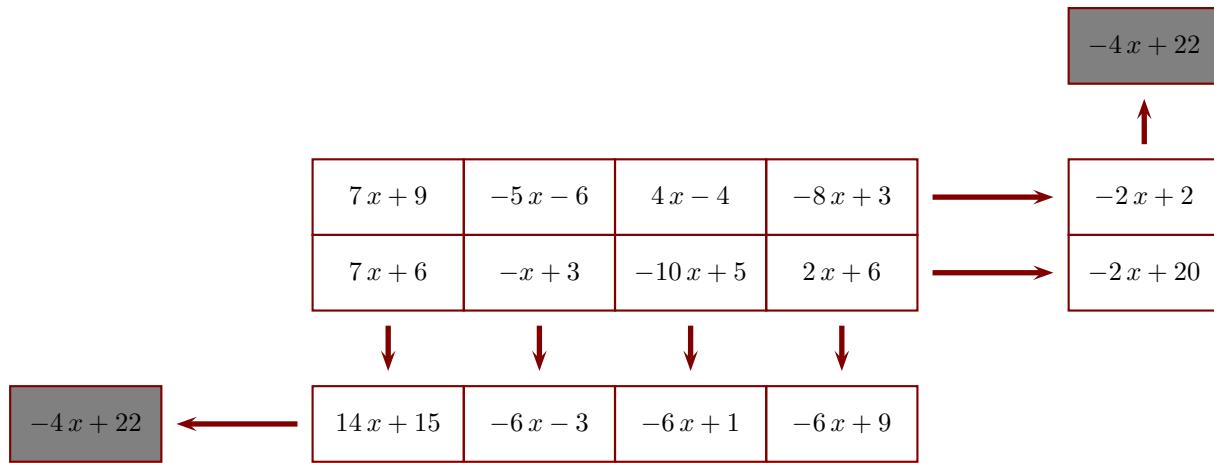
$$E = 12x^2 - 4x^2 - 16x + 42x - 56$$

$$E = (12 - 4)x^2 + (-16 + 42)x - 56$$

$$E = 8x^2 + 26x - 56$$

Corrigé de l'exercice 3

Le principe est le suivant : l'extrémité de chaque flèche indique la somme de la ligne ou de la colonne correspondante. Compléter, sachant que x représente un nombre quelconque et que le contenu des deux cases grises doit être le même.



Ligne du bas :

$$\begin{aligned} A &= 7x + 9 + 7x + 6 \\ A &= 7x + 7x + 9 + 6 \\ A &= (7 + 7)x + 15 \end{aligned}$$

$$A = 14x + 15$$

$$\begin{aligned} B &= -5x - 6 - x + 3 \\ B &= -5x - x - 6 + 3 \\ B &= (-5 - 1)x - 3 \end{aligned}$$

$$B = -6x - 3$$

$$\begin{aligned} C &= 4x - 4 - 10x + 5 \\ C &= 4x - 10x - 4 + 5 \\ C &= (4 - 10)x + 1 \end{aligned}$$

$$C = -6x + 1$$

$$\begin{aligned} D &= -8x + 3 + 2x + 6 \\ D &= -8x + 2x + 3 + 6 \\ D &= (-8 + 2)x + 9 \end{aligned}$$

$$D = -6x + 9$$

Colonne de droite :

$$\begin{aligned} E &= 7x + 6 - x + 3 - 10x + 5 + 2x + 6 \\ E &= 7x - x - 10x + 2x + 6 + 3 + 5 + 6 \\ E &= (7 - 1 - 10 + 2)x + 20 \end{aligned}$$

$$E = -2x + 20$$

$$\begin{aligned} F &= 7x + 9 - 5x - 6 + 4x - 4 - 8x + 3 \\ F &= 7x - 5x + 4x - 8x + 9 - 6 - 4 + 3 \\ F &= (7 - 5 + 4 - 8)x + 2 \end{aligned}$$

$$F = -2x + 2$$

Cases grises :

$$\begin{aligned} G &= 14x + 15 - 6x - 3 - 6x + 1 - 6x + 9 \\ G &= 14x - 6x - 6x - 6x + 15 - 3 + 1 + 9 \\ G &= (14 - 6 - 6 - 6)x + 22 \end{aligned}$$

$$G = -4x + 22$$

$$\begin{aligned} H &= -2x + 20 - 2x + 2 \\ H &= -2x - 2x + 20 + 2 \\ H &= (-2 - 2)x + 22 \end{aligned}$$

$$H = -4x + 22$$

Corrigé de l'exercice 4

Réduire, si possible, les expressions suivantes :

►1. $A = y - 6y$

$$A = (1 - 6)y$$

$$A = -5y$$

►2. $B = 4 \times 2y$

$$B = 4 \times 2 \times y$$

$$B = 8y$$

►3. $C = -2 \times (-7a)$

$$C = -2 \times (-7) \times a$$

$$C = 14a$$

►4. $D = -2y - 8y^2$

$$D = -8y^2 - 2y$$

►5. $E = 8x^2 - 7x^2$

$$E = (8 - 7)x^2$$

$$E = x^2$$

►6. $F = 10a - (-4a)$

$$F = (10 + 4)a$$

$$F = 14a$$

►7. $G = -8x^2 - (-5x^2)$

$$G = (-8 + 5)x^2$$

$$G = -3x^2$$

►8. $H = 9 \times 5 a^2$

$$H = 9 \times 5 \times a^2$$

$$H = 45 a^2$$

►9. $I = -3 t^2 \times 6$

$$I = -3 \times t^2 \times 6$$

$$I = -3 \times 6 \times t^2$$

$$I = -18 t^2$$

Corrigé de l'exercice 5

Réduire chacune des expressions littérales suivantes :

$$A = (-9x + 9) - 10 + 5x$$

$$A = -9x + 9 + 5x - 10$$

$$A = -9x + 5x + 9 - 10$$

$$A = (-9 + 5)x - 1$$

$$A = -4x - 1$$

$$B = -(2x - 8) + 4 - 4x$$

$$B = -2x + 8 + 4 - 4x$$

$$B = -2x - 4x + 8 + 4$$

$$B = (-2 - 4)x + 12$$

$$B = -6x + 12$$

$$C = -7 - 8x - (-8x - 2)$$

$$C = -8x - 7 - (-8x - 2)$$

$$C = -8x - 7 + 8x + 2$$

$$C = -8x + 8x - 7 + 2$$

$$C = (-8 + 8)x - 5$$

$$C = -5$$

$$D = -9x - 2 + (-9x - 1)$$

$$D = -9x - 2 - 9x - 1$$

$$D = -9x - 9x - 2 - 1$$

$$D = (-9 - 9)x - 3$$

$$D = -18x - 3$$

$$E = 4 + 5x - (4x + 1)$$

$$E = 5x + 4 - (4x + 1)$$

$$E = 5x + 4 - 4x - 1$$

$$E = 5x - 4x + 4 - 1$$

$$E = (5 - 4)x + 3$$

$$E = x + 3$$

$$F = -8 - (-4x + 9) - 3x$$

$$F = -8 + 4x - 9 - 3x$$

$$F = 4x - 3x - 8 - 9$$

$$F = (4 - 3)x - 17$$

$$F = x - 17$$

Corrigé de l'exercice 6

Calculer les expressions suivantes et donner le résultat sous la forme d'une fraction irréductible.

$$A = \frac{-45}{7} + \frac{-9}{7} \times \frac{7}{72}$$

$$A = \frac{-45}{7} + \frac{-1 \times 9}{1 \times 8} \times \frac{1 \times 8}{8 \times 9}$$

$$A = \frac{-45}{7} + \frac{-1}{8}$$

$$A = \frac{-45 \times 8}{7 \times 8} + \frac{-1 \times 7}{8 \times 7}$$

$$A = \frac{-360}{56} + \frac{-7}{56}$$

$$A = \frac{-367}{56}$$

$$B = \frac{\frac{-1}{2} - 10}{\frac{-1}{2} - 9}$$

$$B = \frac{\frac{-1}{2} - \frac{10 \times 2}{1 \times 2}}{\frac{-1}{2} - \frac{9 \times 2}{1 \times 2}}$$

$$B = \frac{\frac{-1}{2} - \frac{20}{2}}{\frac{-1}{2} - \frac{18}{2}}$$

$$B = \frac{\frac{-21}{2} \div \frac{-19}{2}}{\frac{-21}{2} \times \frac{-2}{19}}$$

$$B = \frac{\frac{-21}{2} \times \frac{-2}{19}}{\frac{-21}{-1 \times 2} \times \frac{1 \times 2}{19}}$$

$$B = \frac{21}{19}$$

$$C = \frac{-1}{4} \div \left(\frac{9}{7} - \frac{-7}{8} \right)$$

$$C = \frac{-1}{4} \div \left(\frac{9 \times 8}{7 \times 8} - \frac{-7 \times 7}{8 \times 7} \right)$$

$$C = \frac{-1}{4} \div \left(\frac{72}{56} - \frac{-49}{56} \right)$$

$$C = \frac{-1}{4} \div \frac{121}{56}$$

$$C = \frac{-1}{4} \times \frac{56}{121}$$

$$C = \frac{-1}{1 \times 4} \times \frac{14 \times 4}{121}$$

$$C = \frac{-14}{121}$$