CORRECTION DU DEVOIR SURVEILLÉ N° 1

Calcul littéral, équations du premier degré, fractions	*Le 20 septembre 2023*

Exercice 1

$A = -7(-5x + 4) = 7 \times 5x - 7 \times 4 = \mathbf{35x - 28}$.

$B = (3x - 7)(x + 3) = 3x \times x + 3x \times 3 - 7 \times x - 7 \times 3 = 3x^2 + 9x - 7x - 21 = \mathbf{3x^2 + 2x - 21}$.

Exercice 2

$C = 20x + 25 = 4 \times 5 \times x + 5 \times 5 = 5 \times (4 \times x + 5) = \mathbf{5(4x + 5)}$.

$D = (5x - 7)(6x + 9) + (5x + 3)(6x + 9) = (6x + 9) \times \left[(5x - 7) + (5x + 3)\right] = (6x + 9) \times [5x - 7 + 5x + 3]$

Donc $\mathbf{D = (6x + 9)(10x - 4)}$.

$E = 4x^2 - 9 = (2x)^2 - 3^2 = \mathbf{(2x + 3)(2x - 3)}$

Exercice 3

$F = \dfrac{\dfrac{1}{2} + 3}{5} = \dfrac{\dfrac{1}{2} + \dfrac{6}{2}}{5} = \dfrac{\dfrac{7}{2}}{5} = \dfrac{7}{2} \times \dfrac{1}{5} = \mathbf{\dfrac{7}{10}}$

$G = \left(\dfrac{3}{16} - \dfrac{1}{10}\right) \times \dfrac{2}{3} = \left(\dfrac{3 \times 5}{16 \times 5} - \dfrac{1 \times 8}{10 \times 8}\right) \times \dfrac{2}{3} = \left(\dfrac{15 - 8}{80}\right) \times \dfrac{2}{3} = \dfrac{7}{80} \times \dfrac{2}{3} = \dfrac{7 \times \cancel{2}}{40 \times \cancel{2} \times 3} = \mathbf{\dfrac{7}{120}}$

Exercice 4

a)
$$2x + 5 = 11$$
$$2x + 5 - 5 = 11 - 5$$
$$2x = 6$$
$$\dfrac{2x}{2} = \dfrac{6}{2}$$
$$x = 3$$

Vérification : $\underline{2 \times 3} + 5 = 6 + 5 = 11$

La solution de l'équation est 3 .

b)
$$5x - 5 = x + 1$$
$$5x - 5 - x = x + 1 - x$$
$$4x - 5 = 1$$
$$4x - 5 + 5 = 1 + 5$$
$$4x = 6$$
$$\dfrac{4x}{4} = \dfrac{6}{4}$$
$$x = \dfrac{3}{2} = 1,5$$

Vérification : $\underline{5 \times 1,5} - 5 = 7,5 - 5 = 2,5$

et $1,5 + 1 = 2,5$

La solution de l'équation est 1,5.