

Corrigé du devoir de mathématiques

$$(E_1) \quad 5x - [4 - (3x - 2)] = x + 8 \iff 5x - [6 - 3x] = x + 8 \iff 8x - 6 = x + 8 \iff 7x = 14 \iff x = 2$$

Donc, $\mathcal{S} = \{2\}$.

$$(E_2) \quad (2x - 3)(-x + 2) = 0 \iff \left\{ \begin{array}{l} 2x - 3 = 0 \\ \text{ou, } -x + 2 = 0 \end{array} \right. \iff \left\{ \begin{array}{l} x = \frac{3}{2} \\ \text{ou, } x = 2 \end{array} \right. \text{ donc, } \mathcal{S} = \left\{ \frac{3}{2}; 2 \right\}$$

$$(E_3) \quad x(x + 3) = 2(x + 3) \iff x(x + 3) - 2(x + 3) = 0 \iff (x + 3)[x - 2] = 0.$$

C'est une équation produit et donc $\left\{ \begin{array}{l} x + 3 = 0 \\ \text{ou, } x - 2 = 0 \end{array} \right. \iff \left\{ \begin{array}{l} x = -3 \\ \text{ou, } x = 2 \end{array} \right.$. Donc, $\mathcal{S} = \{-3; 2\}$.

$$(E_4) \quad (x^2 - 5)(3x + 7) = 0 \iff \left\{ \begin{array}{l} x^2 - 5 = 0 \\ \text{ou, } 3x + 7 = 0 \end{array} \right. \iff \left\{ \begin{array}{l} x^2 = 5 \\ \text{ou, } x = -\frac{7}{3} \end{array} \right. \iff \left\{ \begin{array}{l} x = -\sqrt{5} \text{ ou, } x = \sqrt{5} \\ \text{ou, } x = -\frac{7}{3} \end{array} \right.$$

donc, $\mathcal{S} = \left\{ -\frac{7}{3}; -\sqrt{5}; \sqrt{5} \right\}$

$$(E_5) \quad (2x - 3)(x + 6) - (x + 6) = 0 \iff (x + 6)[(2x - 3) - 1] = 0 \iff (x + 6)[2x - 4] = 0 \iff$$

$$\left\{ \begin{array}{l} x + 6 = 0 \\ \text{ou, } 2x - 4 = 0 \end{array} \right. \iff \left\{ \begin{array}{l} x = -6 \\ \text{ou, } x = 2 \end{array} \right. \text{ donc, } \mathcal{S} = \{-6; 2\}$$

$$(E_6) \quad \frac{x^2 - 25}{2x - 10} = 0 \iff \left\{ \begin{array}{l} x^2 - 25 = 0 \\ \text{et, } 2x - 10 \neq 0 \end{array} \right. \iff \left\{ \begin{array}{l} x^2 = 25 \\ \text{et, } x \neq 5 \end{array} \right. \iff \left\{ \begin{array}{l} x = -5 \text{ ou, } x = 5 \\ \text{et, } x \neq 5 \end{array} \right. \text{ donc,}$$

$\mathcal{S} = \{-5\}$

$$(E_7) \quad \frac{2}{2x + 5} - \frac{1}{4x - 3} = 0 \iff \frac{6x - 11}{(2x + 5)(4x - 3)} = 0 \iff \left\{ \begin{array}{l} 6x - 11 = 0 \\ \text{et, } (2x + 5)(4x - 3) \neq 0 \end{array} \right. \iff \left\{ \begin{array}{l} x = \frac{11}{6} \\ \text{et, } x \neq -\frac{5}{2} \text{ et, } x \neq \frac{3}{4} \end{array} \right.$$

donc, $\mathcal{S} = \left\{ \frac{11}{6} \right\}$

$$(E_8) \quad (2x + 3)^2 = 49 \iff \left\{ \begin{array}{l} 2x + 3 = -7 \\ \text{ou, } 2x + 3 = 7 \end{array} \right. \iff \left\{ \begin{array}{l} x = -5 \\ \text{ou, } x = 2 \end{array} \right. \text{ donc, } \mathcal{S} = \{-5; 2\}$$