

Résolution d'équations

Résous les équations suivantes :

1) $ \begin{aligned} 3 - 4x &= -6x + 2 \\ -4x + 6x &= 2 - 3 \\ 2x &= -1 \\ x &= \frac{-1}{2} \\ S &= \left\{ \frac{-1}{2} \right\} \end{aligned} $	2) $ \begin{aligned} 4x - 3 \cdot (x - 2) &= 4x - (10x - 2) \\ 4x - 3x + 6 &= 4x - 10x + 2 \\ x + 6 &= -6x + 2 \\ x + 6x &= 2 - 6 \\ 7x &= -4 \\ x &= \frac{-4}{7} \\ S &= \left\{ \frac{-4}{7} \right\} \end{aligned} $
3) $ \begin{aligned} \frac{3x - 5}{3} &= \frac{-3x - 2}{4} \\ 4 \cdot (3x - 5) &= 3 \cdot (-3x - 2) \\ 12x - 20 &= -9x - 6 \\ 12x + 9x &= -6 + 20 \\ 21x &= 14 \\ x &= \frac{14}{21} \\ x &= \frac{2}{3} \\ S &= \left\{ \frac{2}{3} \right\} \end{aligned} $	4) $ \begin{aligned} \frac{-3x + 5}{2} &= \frac{10 - 6x}{4} \\ 4 \cdot (-3x + 5) &= 2 \cdot (10 - 6x) \\ -12x + 20 &= 20 - 12x \\ -12x + 12x &= 20 - 20 \\ 0x &= 0 \\ \text{Equation indéterminée!} \\ S &= R \end{aligned} $
5) $ \begin{aligned} \frac{x}{3} + \frac{x - 1}{2} &= -3 \\ \frac{2x}{6} + \frac{3x - 3}{6} &= \frac{-18}{6} \\ 2x + 3x - 3 &= -18 \\ 5x &= -18 + 3 \\ 5x &= -15 \\ x &= \frac{-15}{5} \\ x &= -3 \\ S &= \{-3\} \end{aligned} $	6) $ \begin{aligned} \frac{2x}{3} - \frac{2x - 5}{5} &= 2 - \frac{x + 3}{15} \\ \frac{10x}{15} - \frac{6x - 15}{15} &= \frac{30}{15} - \frac{x + 3}{15} \\ 10x - 6x + 15 &= 30 - x - 3 \\ 4x + 15 &= 27 - x \\ 4x + x &= 27 - 15 \\ 5x &= 12 \\ x &= \frac{12}{5} \\ S &= \left\{ \frac{12}{5} \right\} \end{aligned} $
7) $ \begin{aligned} (2x - 3) \cdot (x - 5) &= (x - 6) \cdot (2x - 1) \\ 2x^2 - 10x - 3x + 15 &= 2x^2 - x - 12x + 6 \\ 2x^2 - 2x^2 - 13x + 13x &= 6 - 15 \\ 0x &= -9 \\ \text{Equation impossible!} \\ S &= \{\} \end{aligned} $	8) $ \begin{aligned} (x + 2)^2 - (x - 7)^2 &= 15 \\ x^2 + 4x + 4 - (x^2 - 14x + 49) &= 15 \\ x^2 + 4x + 4 - x^2 + 14x - 49 &= 15 \\ 18x - 45 &= 15 \\ 18x &= 15 + 45 \\ 18x &= 60 \\ x &= \frac{60}{18} \\ x &= \frac{10}{3} \\ S &= \left\{ \frac{10}{3} \right\} \end{aligned} $

9)

$$(3x - 5) \cdot 2x = 0$$



$$3x - 5 = 0 \quad \text{ou} \quad 2x = 0$$

$$3x = 5 \quad \text{ou} \quad x = \frac{0}{2}$$

$$x = \frac{5}{3} \quad \text{ou} \quad x = 0$$

$$S: \left\{ \frac{5}{3}; 0 \right\}$$

10)

$$5 \cdot (2x + 1)^2 = 0$$



$$2x + 1 = 0$$

$$2x = -1$$

$$x = \frac{-1}{2}$$

$$S = \left\{ \frac{-1}{2} \right\}$$