

Résoudre une équation , c'est trouver la ou les solutions qui la vérifient.

Exemples :  $3x + 7 = 8$

$$3x + 7 - 7 = 8 - 7$$

$$3x = 1$$

$$3x : 3 = 1 : 3$$

$$x = \frac{1}{3}$$

$$S = \left\{ \frac{1}{3} \right\}$$

$$5x + 3 = 4x - 7$$

$$5x + 3 - 4x = 4x - 7 - 4x$$

$$x + 3 = -7$$

$$x + 3 - 3 = -7 - 3$$

$$x = -10$$

$$S = \{-10\}$$

Exercice : Résoudre les équations

a)  $5x + 7 = 2$  ; b)  $-4x + 5 = 9$  ; c)  $6x + 8 = -15$  ; d)  $-16x + 8 = -3$

e)  $2x + 4 = 7x - 3$  ; f)  $-2x + 4 = -9x + 2$  ; g)  $-8x + 7 = 11x + 5$  ;

h)  $x + \frac{3}{4} = \frac{2}{3}x + 2$  ; i)  $\frac{-3}{5}x + \frac{3}{4} = \frac{7}{10}x + 2$  ; j)  $5(x + 4) - 3(2x - 4) = 6$  ;

k)  $-9(2x + 4) - 3(-6x + 4) = 6$  ; l)  $5(-4x + 1) = 3(2x + 5)$  ; m)  $\frac{-3}{5}(x - 10) + \frac{3}{4} = \frac{3}{2}x + 5$

n)  $5x + 4 - 2(3x + 1) - 2(x + 5) = 4(x + 2) - (4x + 3)$  ; p)  $(2x - 1)(x + 4) = (x + 7)(2x + 8)$

Exercice : Résoudre les équations

$$\begin{aligned} \text{a) } 5x + 7 &= 2 \\ 5x &= -5 \end{aligned}$$

$$x = -1$$

$$S = \{-1\}$$

$$\begin{aligned} \text{b) } -4x + 5 &= 9 \\ -4x &= 4 \end{aligned}$$

$$x = -1$$

$$S = \{-1\}$$

$$\begin{aligned} \text{c) } 6x + 8 &= -15 \\ 6x &= -23 \end{aligned}$$

$$x = -\frac{23}{6}$$

$$S = \left\{-\frac{23}{6}\right\}$$

$$\begin{aligned} \text{d) } -16x + 8 &= -3 \\ -16x &= -11 \end{aligned}$$

$$x = \frac{11}{16}$$

$$S = \left\{\frac{11}{16}\right\}$$

$$\text{e) } 2x + 4 = 7x - 3$$

$$-5x = -7$$

$$x = \frac{7}{5}$$

$$S = \left\{\frac{7}{5}\right\}$$

$$\text{f) } -2x + 4 = -9x + 2$$

$$7x = -2$$

$$x = -\frac{2}{7}$$

$$S = \left\{-\frac{2}{7}\right\}$$

$$\text{g) } -8x + 7 = 11x + 5$$

$$-19x = -2$$

$$x = \frac{2}{19}$$

$$S = \left\{\frac{2}{19}\right\}$$

$$\text{h) } x + \frac{3}{4} = \frac{2}{3}x + 2$$

$$\frac{1}{3}x = \frac{5}{4}$$

$$x = \frac{5}{4} \times \frac{3}{1} = \frac{15}{4}$$

$$S = \left\{\frac{15}{4}\right\}$$

$$\text{i) } \frac{-3}{5}x + \frac{3}{4} = \frac{7}{10}x + 2$$

$$-\frac{6}{10}x - \frac{7}{10}x = \frac{8}{4} - \frac{3}{4}$$

$$-\frac{13}{10}x = \frac{5}{4}$$

$$x = \frac{5}{4} \times \frac{-10}{13} = -\frac{25}{26}$$

$$S = \left\{-\frac{25}{26}\right\}$$

$$\text{j) } 5(x + 4) - 3(2x - 4) = 6$$

$$5x + 20 - 6x + 12 = 6$$

$$-x = -26$$

$$x = 26$$

$$S = \{26\}$$

$$\text{k) } -9(2x + 4) - 3(-6x + 4) = 6$$

$$-18x - 36 + 18x - 12 = 6$$

$$0x = 54$$

$$\text{pas de solution } S = \emptyset$$

$$\text{l) } 5(-4x + 1) = 3(2x + 5)$$

$$-20x + 5 = 6x + 15$$

$$-26x = 10$$

$$x = -\frac{10}{26} = -\frac{5}{13}$$

$$S = \left\{-\frac{5}{13}\right\}$$

$$\text{m) } \frac{-3}{5}(x - 10) + \frac{3}{4} = \frac{3}{2}x + 5$$

$$-\frac{3}{5}x + 6 + \frac{3}{4} = \frac{3}{2}x + 5$$

$$-\frac{6}{10}x - \frac{15}{10}x = -\frac{4}{4} - \frac{3}{4}$$

$$-\frac{21}{10}x = -\frac{7}{4}$$

$$x = \frac{7}{4} \times \frac{10}{21} = \frac{5}{6}$$

$$S = \left\{\frac{5}{6}\right\}$$

$$\text{n) } 5x + 4 - 2(3x + 1) - 2(x + 5) = 4(x + 2) - (4x + 3)$$

$$5x + 4 - 6x - 2 - 2x - 10 = 4x + 8 - 4x - 3$$

$$-3x - 8 = 5$$

$$-3x = 13$$

$$x = -\frac{13}{3}$$

$$S = \left\{ -\frac{13}{3} \right\}$$

$$\text{p) } (2x - 1)(x + 4) = (x + 7)(2x + 8)$$

$$2x^2 + 8x - x - 4 = 2x^2 + 8x + 14x + 56$$

$$2x^2 + 7x - 4 = 2x^2 + 22x + 56$$

$$-15x = 60$$

$$x = -\frac{60}{15} = -4$$

$$S = \{-4\}$$