

Unité 1

Leçon 7

Résolution d'équations dans \mathbb{Q}

EXERCICES

1- Résous l'équation $3(x + 2) + 7(x - 1) = 9$ dans \mathbb{Z}



$$3(x + 2) + 7(x - 1) = 9$$

$$3x + 3(2) + 7x + 7(-1) = 9$$

$$3x + 6 + 7x - 7 = 9$$

$$10x - 1 = 9$$

$$10x = 9 + 1$$

$$10x = 10$$

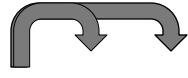
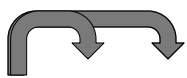
$$x = \frac{10}{10}$$

$$x = 1$$

$$\therefore 1 \in \mathbb{Z}$$

$$\therefore \text{E.S} = \{1\}$$

2- Résous l'équation $3(x + 2) + 7(x - 1) = 12$ dans \mathbb{Z}



$$3(x + 2) + 7(x - 1) = 12$$

$$3x + 3(2) + 7x + 7(-1) = 12$$

$$3x + 6 + 7x - 7 = 12$$

$$10x - 1 = 12$$

$$10x = 12 + 1$$

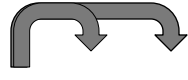
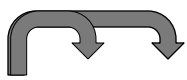
$$10x = 13$$

$$x = \frac{13}{10}$$

$$\therefore \frac{13}{10} \notin \mathbb{Z}$$

$$\therefore E.S = \{ \} = \emptyset$$

3- Résous l'équation $3(2x - 3) - (2x + 2) = x - 3$ dans \mathbb{Q}



$$3(2x - 3) - (2x + 2) = x - 3$$

$$3(2x) + 3(-3) - 2x - 2 = x - 3$$

$$6x - 9 - 2x - 2 = x - 3$$

$$4x - 11 = x - 3$$

$$4x - x = -3 + 11$$

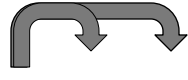
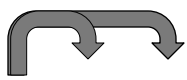
$$3x = 8$$

$$x = \frac{8}{3}$$

$$\therefore \frac{8}{3} \in \mathbb{Q}$$

$$\therefore E.S = \left\{ \frac{8}{3} \right\}$$

4- Si $7(x - 2) + 2(x - 3) = -2$ Trouve la valeur de $x^2 - 3$



$$7(x - 2) + 2(x - 3) = -2$$

$$7(x) + 7(-2) + 2(x) + 2(-3) = -2$$

$$7x - 14 + 2x - 6 = -2$$

$$9x - 20 = -2$$

$$9x = -2 + 20$$

$$9x = 18$$

$$x = \frac{18}{9}$$

$$x = 2$$

$$\therefore x^2 - 3$$

$$= 2^2 - 3$$

$$= 4 - 3$$

$$= 1$$