

# Ch2 Equations

du premier degré

à une inconnue

**Résolutions d'équations avec dénominateurs**

## Exercices NAM Page 39 ex 8

8) Résous les équations suivantes.

$$a) \frac{3x-4}{2} = \frac{x-3}{4}$$

$$\frac{x}{3} - \frac{x-1}{2} = \frac{1}{3}$$

$$\frac{2x-1}{2} - \frac{x-3}{5} = 0$$

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

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

$$x - \frac{3x-1}{2} = \frac{1}{3}$$

$$b) \frac{x}{2} + \frac{x}{3} - \frac{x}{4} = 10$$

$$\frac{1}{2} - \frac{3x+5}{6} = \frac{x}{3}$$

$$\frac{x-1}{3} - \frac{x-2}{4} = 1$$

$$\frac{x}{2} - \frac{1}{3} = x - \frac{x-1}{6}$$

$$\frac{6x-3}{4} - 1 = \frac{3x-1}{2}$$

$$\frac{2 \cdot (x+3)}{5} = \frac{3 \cdot (2-x)}{4}$$

$$c) \frac{x-3}{2} - \frac{2x+5}{3} = \frac{1}{5}$$

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

$$\frac{-2x+1}{5} - \frac{x-3}{2} = 2$$

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

$$\frac{5 \cdot (2x-1)}{7} - \frac{3 \cdot (2x+1)}{2} = \frac{1}{14}$$

$$3 - \frac{2x}{3} - \frac{3 \cdot (1-x)}{2} = 0$$

### Exercices NAM P39 ex8 - AM P24

Réponses



Sources



Fractions 

# Exercices NAM Page 39 ex 8 colonne a



8) Résous les équations suivantes.

$$a) \frac{3x - 4}{2} = \frac{x - 3}{4}$$

$$\frac{x}{3} - \frac{x - 1}{2} = \frac{1}{3}$$

$$\frac{2x - 1}{2} - \frac{x - 3}{5} = 0$$

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

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

$$x - \frac{3x - 1}{2} = \frac{1}{3}$$

★  $\frac{(3x-4)(x-3)}{2 \cdot 4}$

Den 4

$$2(3x-4) = (x-3)$$

$$6x - 8 = x - 3$$

$$6x - x = 8 - 3$$

$$5x = 5$$

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

$$S = \{1\}$$

★  $\frac{x}{3} - \frac{x-1}{2} = \frac{1}{3}$

$$\frac{3x-4}{2} = \frac{x-3}{4}$$

2.  $\frac{3x-4}{2} = \frac{x-3}{4}$

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

$$x = \frac{5 \cdot 4}{4 \cdot 5}$$

$$\boxed{x=1} \quad S = \{1\}$$



$$\frac{(3x-4) \cdot (x-3)}{2 \cdot 4}$$

Dem 4

$$2(3x-4) = (x-3)$$

$$6x-8 = x-3$$

$$6x-x = 8-3$$

$$5x = 5$$

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

$$S = \{1\}$$



$$\frac{2 \cdot x}{2 \cdot 3} - \frac{3(x-1)}{3 \cdot 2} = \frac{1 \cdot 2}{3 \cdot 2}$$

$$2x - 3(x-1) = 2$$

$$2x - 3x + 3 = 2$$

$$2x - 3x = 2 - 3$$

$$-x = -1$$

$$x = 1$$

$$S = \{1\}$$

★ 3

$$\frac{5(2x-1)}{5 \cdot 2} - \frac{2(x-3)}{5 \cdot 2} = \frac{0}{10}$$

$$\underline{5(2x-1)} - \underline{2(x-3)} = 0$$

$$10x - 5 - 2x + 6 = 0$$

$$10x - 2x = 0 - 6 + 5$$

$$8x = -1$$

$$x = \frac{-1}{8}$$

$$S = \left\{ \frac{-1}{8} \right\}$$

★ 4

$$\frac{6 \cdot x}{6 \cdot 2} + \frac{3(3-2x)}{4 \cdot 3} = \frac{12}{12} - \frac{4(3-x)}{3 \cdot 4}$$

Den 12

$$\underline{6x} + \underline{3(3-2x)} = \underline{12} - \underline{4(3-x)}$$

$$\cancel{6x} + 9 - \cancel{6x} = 12x - 12 + 4x$$

$$-(12x + 4x) = -12 - 9$$

$$-16x = -21$$

$$x = \frac{-21}{-16}$$

$$S = \left\{ \frac{21}{16} \right\}$$

$$\star 5 \quad 3 \cdot \frac{-x+5}{4 \cdot 3} = \frac{x \cdot 4}{3 \cdot 4}$$

$$3(-x+5) = 4x$$

$$-3x + 15 = 4x$$

$$-3x - 4x = -15$$

$$-7x = -15$$

$$x = \frac{15}{7}$$

$$S = \left\{ \frac{15}{7} \right\}$$

$$\star 6 \quad \frac{6x - 3(3x-1)}{2 \cdot 3} = \frac{1 \cdot 2}{3 \cdot 2}$$

Donc

$$\underline{6x} - \underline{3(3x-1)} = 2$$

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

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

$$-3x = -1$$

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

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

$$\frac{2 \cdot 1 : 3}{6 : 3}$$

# Exercices

NAM Page 39 ex 8 colonne b



$$\text{b) } \frac{x}{2} + \frac{x}{3} - \frac{x}{4} = 10$$

$$\frac{1}{2} - \frac{3x+5}{6} = \frac{x}{3}$$

$$\frac{x-1}{3} - \frac{x-2}{4} = 1$$

$$\frac{x}{2} - \frac{1}{3} = x - \frac{x-1}{6}$$

$$\frac{6x-3}{4} - 1 = \frac{3x-1}{2}$$

$$\frac{2 \cdot (x+3)}{5} = \frac{3 \cdot (2-x)}{4}$$





$$\frac{x}{2} + \frac{x}{3} - \frac{x}{4} = 10$$

$$\frac{6x + 4x - 3x}{12} = 10$$

$$\frac{7x}{12} = 10$$

$$x = 10 \cdot \frac{12}{7}$$

$$x = \frac{120}{7}$$

$$S = \left\{ \frac{120}{7} \right\}$$



$$\frac{3 \cdot 1}{3 \cdot 2} - \frac{(3x + 5)}{6} = \frac{x \cdot 2}{3}$$

$$3 - (3x + 5) = 2x$$

$$3 - 3x - 5 = 2x$$

$$-2x - 3x = 5 - 3$$

$$-5x = 2$$

$$x = -\frac{2}{5}$$

$$S = \left\{ -\frac{2}{5} \right\}$$

★

$$\frac{x}{2} + \frac{x}{3} - \frac{x}{4} = 10$$

$$\frac{1}{2}x + \frac{1}{3}x - \frac{1}{4}x = 10$$

$$\frac{6}{12}x + \frac{4}{12}x - \frac{3}{12}x = 10$$

$$\frac{7}{12}x = 10$$

$$x = \frac{12}{7} \cdot \frac{10}{1} =$$

$$x = \frac{120}{7}$$

$$\text{Sol} = \left\{ \frac{120}{7} \right\}$$

★

$$\frac{1}{2} - \frac{3x+5}{6} = \frac{x}{3}$$

39

$$\begin{aligned} \frac{3}{6} - \left[ \frac{3x+5}{6} \right] &= \frac{2x}{6} \\ 3 - 3x - 5 &= 2x \\ -3x - 2x &= -3 + 5 \\ -5x &= 2 \\ x &= \frac{2}{-5} \end{aligned}$$

$$\text{Sol} = \left\{ \frac{2}{-5} \right\}$$

★ 3

$$4 \frac{(x-1)}{3} - 3 \frac{(x-2)}{4} = \frac{12}{12}$$

Den 12

$$4(x-1) - 3(x-2) = 12$$

$$4x - 4 - 3x + 6 = 12$$

$$4x - 3x = 12 - 6 + 4$$

$$x = 10$$

$$S = \{10\}$$

★ 4

$$\frac{x}{2} - \frac{1}{3} = x - \frac{(x-1)}{6}$$

$$3x - 2 = 6x - (x-1)$$

$$3x - 2 = 6x - x + 1$$

$$3x - 6x + x = 2 + 1$$

$$-2x = 3$$

$$x = -\frac{3}{2}$$

$$S = \left\{-\frac{3}{2}\right\}$$

★

$$\frac{(6x-3)}{4} - \frac{1}{1} = \frac{(3x-1)}{2}$$

Den 4

$$6x - 3 - 4 = 2(3x - 1)$$

$$6x - 3 - 4 = 6x - 2$$

$$6x - 6x = -2 + 3 + 4$$

$$0x = 5$$

$$\frac{6x}{4} - \frac{3}{4} - \frac{1}{4} = \frac{3x}{2} - \frac{1}{2}$$

Equation impossible

Solution :  $S = \emptyset$ 

$$S = \{ \}$$

★

$$\frac{2 \cdot (x+3)}{5} = \frac{3 \cdot (2-x)}{4}$$

39

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

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

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

$$\frac{(8+15)}{20}x = \frac{15-12}{10}$$

$$\frac{23}{20}x = \frac{3}{10}$$

$$x = \frac{3}{10} \cdot \frac{20}{23}$$

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

# Exercices NAM Page 39 ex 8 colonne c



$$c) \frac{x-3}{2} - \frac{2x+5}{3} = \frac{1}{5}$$

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

$$\frac{-2x+1}{5} - \frac{x-3}{2} = 2$$

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

$$\frac{5 \cdot (2x-1)}{7} - \frac{3 \cdot (2x+1)}{2} = \frac{1}{14}$$

$$3 - \frac{2x}{3} - \frac{3 \cdot (1-x)}{2} = 0$$

★ 1  
C)  $\frac{(x-3)}{2 \cdot 15} - \frac{10(2x+5)}{30} = \frac{1 \cdot 6}{5 \cdot 6}$

Den 30

$$15(x-3) - 10(2x+5) = 6$$

$$15x - 45 - 20x - 50 = 6$$

$$15x - 20x = 45 + 50 + 6$$

$$-5x = 101$$

$$x = -\frac{101}{5}$$

$$S = \left\{ -\frac{101}{5} \right\}$$

ex 8 colonne c

★ 2  
L)  $\frac{2x-5}{4} - \frac{(x-2)}{4} = \frac{(x+3)}{2 \cdot 2}$

Den 4

$$8x - 20 - (x-2) = 2(x+3)$$

$$8x - 20 - x + 2 = 2x + 6$$

$$8x - x - 2x = 20 - 2 + 6$$

$$5x = 24$$

$$x = \frac{24}{5}$$

$$S = \left\{ 4,8 \right\}$$

39  $2 \frac{(-2x+1)}{5 \cdot 2} - \frac{(x-3)}{2 \cdot 5} = \frac{20}{10}$

Dén 10

$$2(-2x+1) - 5(x-3) = 20$$

$$-4x + 2 - 5x + 15 = 20$$

$$-4x - 5x = 20 - 15 - 2$$

$$-9x = 3$$

$$x = \frac{-3}{9}$$

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

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

39  $5 \frac{(5x+3)}{4 \cdot 5} - \frac{3 \cdot 20}{20} = \frac{(2-x) \cdot 4}{5 \cdot 4}$

Dén 20

$$5(5x+3) - 60 = 4(2-x)$$


$$25x + 15 - 60 = 8 - 4x$$

$$25x + 4x = 8 + 60 - 15$$

$$29x = 53$$

$$x = \frac{53}{29}$$

$$S = \left\{ \frac{53}{29} \right\}$$



$$\frac{9.5 \cdot (2x-1)}{7.2} - \frac{3 \cdot (2x+1)}{2.7} = \frac{1}{14}$$

Den 14

$$10(2x-1) - 2(2x+1) = 1$$

$$20x - 10 - 4x - 2 = 1$$


$$20x - 4x = 1 + 10 + 2$$

$$-22x = 32$$

$$x = \frac{-32}{22}$$

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

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



$$\frac{6.3}{6} - \frac{2x}{3.2} - \frac{3 \cdot (1-x)}{2.3} = \frac{0.6}{6}$$

Den 6

$$18 - 4x - 9(1-x) = 0$$

$$18 - 4x - 9 + 9x = 0$$

$$-4x + 9 = 9 - 18$$

$$5x = -9$$

$$x = -\frac{9}{5}$$

$$S = \left\{ -\frac{9}{5} \right\}$$