

## ex 1

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

$\Leftrightarrow \frac{3}{2}x = \frac{5}{3}$

$\Leftrightarrow x = \frac{5}{3} \times \frac{2}{3}$

$\Leftrightarrow x = \underline{\underline{\frac{10}{9}}}$

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

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

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

$\Leftrightarrow x = \underline{\underline{2}}$

2.  $2x + \sqrt{3} = 0$

$\Leftrightarrow x = \underline{\underline{-\frac{\sqrt{3}}{2}}}$

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

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

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

$\Leftrightarrow x = \underline{\underline{12}}$

5.  $\sqrt{2}x + \frac{1}{\sqrt{2}} = 0$

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

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

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

$\Leftrightarrow 8(x-3) = 3x-2 + 2$

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

$\Leftrightarrow 5x = 24$

$\Leftrightarrow$  Pas de solution

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

$$\underline{8.} \quad 2(x-1) = \sqrt{2}(x+1) - 1$$

$$\Rightarrow (2 - \sqrt{2})x = \sqrt{2} + 1$$

$$\Rightarrow x = \frac{\sqrt{2} + 1}{2 - \sqrt{2}}$$

$$\underline{9.} \quad x - \sqrt{3}(x+1) = 2 - x$$

$$\Rightarrow x(2 - \sqrt{3}) = 2 + \sqrt{3}$$

$$\Rightarrow x = \frac{2 + \sqrt{3}}{2 - \sqrt{3}}$$

$$\underline{10} \quad \frac{x+1}{2} + \frac{x+2}{3} + \frac{x+3}{4} = 12x - 1$$

$$\Rightarrow \frac{3x+5}{4} + \frac{x+2}{3} = 12x - 1$$

$$\Rightarrow \frac{13x+23}{12} = 12x - 1$$

$$\Rightarrow 13x + 23 = 144x - 12$$

$$\Rightarrow 131x = 35$$

$$\Rightarrow x = \frac{35}{131}$$

## ex 2

$$\underline{1.} \quad x = -1 \quad \text{ou} \quad x = \frac{2}{3} \quad S = \left\{ -1; \frac{2}{3} \right\}$$

$$\underline{2.} \quad x = 1 \quad \text{ou} \quad x = \frac{5}{2} \quad S = \left\{ 1; \frac{5}{2} \right\}$$

$$\underline{3.} \quad x = -1 \quad \text{ou} \quad x = 3 \quad S = \left\{ -1; 3 \right\}$$

$$\underline{4.} \quad x = \frac{1}{2} \quad \text{ou} \quad x = -\frac{1}{7} \quad S = \left\{ -\frac{1}{7}; \frac{1}{2} \right\}$$

$$\underline{5.} \quad (2x-1)^2 - (2x-1)(x+3) = 0$$

$$\Leftrightarrow (2x-1) \left( 2x-1 - (x+3) \right) = 0$$

$$\Leftrightarrow (2x-1)(x-4) = 0$$

$$\Leftrightarrow x = \frac{1}{2} \quad \text{ou} \quad x = 4$$

$$S = \left\{ \frac{1}{2}; 4 \right\}$$

$$\underline{6.} \quad (3x+1)^2 - (x+1)^2 = 0$$

$$\Leftrightarrow (3x+1 - x-1)(3x+1 + x+1) = 0$$

$$\Leftrightarrow (2x)(4x+2) = 0$$

$$\Leftrightarrow x = 0 \quad \text{ou} \quad x = \frac{-2}{4}$$

$$\Leftrightarrow x = 0 \quad \text{ou} \quad x = -\frac{1}{2}$$

$$S = \left\{ -\frac{1}{2}; 0 \right\}$$

$$\underline{7.} \quad (2x-1)(x+1) = 5(x+1)$$

$$\Leftrightarrow (x+1)(2x-1-5) = 0$$

$$\Leftrightarrow (x+1)(2x-6) = 0$$

$$\Leftrightarrow x = -1 \quad \text{ou} \quad x = \frac{6}{2}$$

$$\Leftrightarrow x = -1 \quad \text{ou} \quad x = 3$$

$$S = \{-1, 3\}$$

8.

$$(x+1)^2 - (2x+2) = 0$$

$$\Leftrightarrow (x+1)^2 - 2(x+1) = 0$$

$$\Leftrightarrow (x+1)(x+1-2) = 0$$

$$\Leftrightarrow (x+1)(x-1) = 0$$

$$\Leftrightarrow x = -1 \quad \text{ou} \quad x = 1$$

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

9)

$$(x-1)^2 - (2x+1)^2 = 0$$

$$\Leftrightarrow (x-1-2x-1)(x-1+2x+1) = 0$$

$$\Leftrightarrow (-x-2)(3x) = 0$$

$$\Leftrightarrow x = -2 \quad \vee \quad x = 0$$

$$S = \left\{ -2, 0 \right\}$$

10)

$$(4x^2 - 9) - 2(2x-3) + x(2x-3) = 0$$

$$\Leftrightarrow (2x-3)(2x+3) - 2(2x-3) + x(2x-3) = 0$$

$$\Leftrightarrow (2x-3)(2x+3-2+x) = 0$$

$$\Leftrightarrow (2x-3)(3x+1) = 0$$

$$\Leftrightarrow x = \frac{3}{2} \quad \vee \quad x = -\frac{1}{3}$$

$$S = \left\{ -\frac{1}{3}, \frac{3}{2} \right\}$$

11)

$$x^2 - 6x + 9 = 0$$

$$\Leftrightarrow (x-3)^2 = 0$$

$$\Leftrightarrow \underline{x = 3}$$

12)

$$3x^2 - 6x + 3 = 0$$

$$\Leftrightarrow (\sqrt{3}x - \sqrt{3})^2 = 0$$

$$\Leftrightarrow \sqrt{3}x - \sqrt{3} = 0$$

$$\Leftrightarrow \underline{x = 1}$$

13)

$$x(x^2 - 4x + 4) = 0$$

$$\Leftrightarrow x(x-2)^2 = 0$$

$$\Leftrightarrow x = 0 \quad \vee \quad x = 2$$

$$S = \{0, 2\}$$

14)

$$4x^2 - 4x + 1 = 0$$

$$\Leftrightarrow (2x - 1)^2 = 0$$

$$\Leftrightarrow 2x - 1 = 0$$

$$\Leftrightarrow \underline{x = \frac{1}{2}}$$

### Exc 3

$$\underline{1.} \quad \frac{1}{x} = 2$$

$$x \neq 0$$

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

$$\underline{2.} \quad x \neq \frac{2}{3}$$

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

$$\Rightarrow 2x+1 = 0$$

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

$$x \neq -1$$

$$2. \quad \frac{2}{x+1} - 3 = 0$$

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

$$\Rightarrow -3x - 1 = 0$$

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