

Équations

ex 23.1

$$\begin{array}{l} x + 12 = 7 \\ x = -5 \end{array} \quad \begin{array}{l} \leftarrow -12 \\ \rightarrow -12 \end{array}$$

$$\begin{array}{l} 9 + x = 15 \\ x = 6 \end{array} \quad \begin{array}{l} \leftarrow -9 \\ \rightarrow -9 \end{array}$$

$$\begin{array}{l} 3,2 + x = 6 \\ x = 2,8 \end{array} \quad \begin{array}{l} \leftarrow -3,2 \\ \rightarrow -3,2 \end{array}$$

$$\begin{array}{l} x - (-3) = 8 \\ x + 3 = 8 \\ x = 5 \end{array} \quad \begin{array}{l} \leftarrow -3 \\ \rightarrow -3 \end{array}$$

ex 23.2

$$\begin{array}{l} 2x = 11 \\ x = \frac{11}{2} \\ x = 5,5 \end{array} \quad \begin{array}{l} \leftarrow \div 2 \\ \rightarrow \div 2 \end{array} \quad \begin{array}{l} -4x = 13 \\ x = \frac{13}{-4} \\ x = -3,25 \end{array} \quad \begin{array}{l} \leftarrow \div -4 \\ \rightarrow \div 4 \end{array}$$

$$\begin{array}{l} \frac{x}{9} = 5 \\ x = 45 \end{array} \quad \begin{array}{l} \leftarrow \times 9 \\ \rightarrow \times 9 \end{array} \quad \begin{array}{l} \frac{x}{12} = -7 \\ x = -84 \end{array} \quad \begin{array}{l} \leftarrow \times 12 \\ \rightarrow \times 12 \end{array}$$

$$\begin{array}{l} -\frac{6}{2} = \frac{8}{1} \\ x \times 8 = -6 \times 1 \\ 8x = -6 \\ x = -\frac{6}{8} \\ x = -\frac{3}{4} \end{array} \quad \left. \begin{array}{l} \\ \\ \\ \end{array} \right\} \text{(pdt en croix)}$$
$$\begin{array}{l} \leftarrow \div 8 \\ \rightarrow \div 8 \end{array}$$

ex 23.3

$$2x + 8 = 7$$

$$\downarrow -8$$

$$2x = -1$$

$$\downarrow \div 2$$

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

$$4 - 8x = 15$$

$$4 + (-8x) = 15$$

$$\downarrow -4$$

$$-8x = 11$$

$$\downarrow \div -8$$

$$x = -\frac{11}{8}$$

$$5x + 11 = 3x + 5$$

$$\downarrow -11$$

$$5x = 3x + (-6)$$

$$\downarrow -3x$$

$$2x = -6$$

$$\downarrow \div 2$$

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

$$\downarrow \div 2$$

$$x = -3$$

$$4x + 3 = -2x + 8$$

$$\downarrow +3$$

$$4x = -2x + 11$$

$$\downarrow +2x$$

$$6x = 11$$

$$x = \frac{11}{6}$$

6

ex 23.4

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

$$x+1=0 \text{ ou } x+2=0$$

$$x = -1 \text{ ou } x = -2$$

$$S = \{-2; -1\}$$

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

$$2x=0 \text{ ou } (3-x)=0$$

$$x=0 \text{ ou } x=3$$

$$S = \{0; 3\}$$

$$(2x+7)(-x+8) = 0$$

$$2x+7=0 \text{ ou } -x+8=0$$

$$2x = -7 \text{ ou } x = 8$$

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

$$x = -3,5$$

$$S = \{-3,5; 8\}$$

$$x(2x-7) = 0$$

$$x=0 \text{ ou } 2x-7=0$$

$$2x = 7$$

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

$$x = 3,5$$

$$S = \{0; 3,5\}$$

ex 23.5

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

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

↘ FACTORISER

$$x+1=0 \text{ ou } x-3=0$$

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

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

$$5x(-1-x) + 5x(-2-x) = 0.$$

$$5x(-1-x + (-2) + (-x)) = 0.$$

$$5x(-3 + (-2x)) = 0.$$

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

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

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

$$\underline{x = -1,5}$$

$$S = \{-1,5; 0\}$$

ex 23.6.

FACTORISER ↪

$$x^2 = 16.$$

$$x^2 - 16 = 0.$$

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

$$x = 4 \quad \text{ou} \quad x = -4$$

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

$$x^2 = 1$$

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

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

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

$$x^2 - 49 = 0.$$

$$(x-7)(x+7) = 0.$$

$$x-7=0 \quad \text{ou} \quad x+7=0.$$

$$x=7 \quad \text{ou} \quad x=-7$$

$$S = \{-7; 7\}$$

$$x^2 = 20.$$

$$x^2 - 20 = 0$$

$$(x - \sqrt{20})(x + \sqrt{20}) = 0$$

$$x - \sqrt{20} = 0 \quad \text{ou}$$

$$x + \sqrt{20} = 0$$

$$S = \{-\sqrt{20}; \sqrt{20}\}$$

