

Exercice n° 11

$$3(x-1) = 4x+7 \Leftrightarrow 3x-3 = 4x+7$$

$$\Leftrightarrow 3x-3 - 3x = 4x+7 - 3x$$

$$\Leftrightarrow -3 = x+7$$

$$\Leftrightarrow -3 - 7 = x+7 - 7$$

$$\Leftrightarrow x = -10$$

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

$$-2(3x+1) = 6(-x-1) \Leftrightarrow -6x-2 = -6x-6$$

$$\Leftrightarrow -6x-2 + 6x = -6x-6 + 6x$$

$$\Leftrightarrow -2 = -6$$

$$S = \emptyset$$

$$\triangle ! \quad S \neq \emptyset$$

$$\frac{3x+21}{x+31} = 1 \Leftrightarrow 3x+21 = x+31$$

$$\Leftrightarrow 3x+21-\cancel{x} = x+31-\cancel{x}$$

$$\Leftrightarrow 2x+21 = 31$$

$$\Leftrightarrow 2x+21-\cancel{21} = 31-\cancel{21}$$

$$\Leftrightarrow 2x = 10$$

$$\Leftrightarrow \frac{2x}{\cancel{2}} = \frac{10}{\cancel{2}}$$

$$\Leftrightarrow x = 5$$

$$S = \{5\}$$

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

$$\Leftrightarrow -x-1+\cancel{x} = -x+3+\cancel{x}$$

$$\Leftrightarrow -1 = 3$$

$$S = \emptyset$$

$$4(-x+1) = 5(2x+3) \Leftrightarrow -4x+4 = 10x+15$$

$$\Leftrightarrow -4x+4 + 4x = 10x+15 + 4x$$

$$\Leftrightarrow 4 = 14x+15$$

$$\Leftrightarrow 4 - 15 = 14x+15 - 15$$

$$\Leftrightarrow -11 = 14x$$

$$\Leftrightarrow \frac{-11}{14} = \frac{14x}{14}$$

$$\Leftrightarrow x = -\frac{11}{14}$$

$$\mathcal{S} = \left\{ -\frac{11}{14} \right\}$$

$$2(4x-6) = 8x-12 \Leftrightarrow \underline{8x-12 = 8x-12}$$

Toujours vrai!

On note $\mathcal{S} = \mathbb{R}$

$$-2(-x+6) = -2(3x+7) \Leftrightarrow \frac{-2(-x+6)}{-2} = \frac{-2(3x+7)}{-2}$$

$$\Leftrightarrow -x+6 = 3x+7$$

$$\Leftrightarrow -x+6+x = 3x+7+x$$

$$\Leftrightarrow 6 = 4x+7$$

$$\Leftrightarrow 6-7 = 4x+7-7$$

$$\Leftrightarrow -1 = 4x$$

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

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

$$S = \left\{ -\frac{1}{4} \right\}$$

$$41(-24x + 31) = -32(4x - 25)$$

$$\Leftrightarrow -984x + 1271 = -128x + 800$$

$$\Leftrightarrow -984x + 1271 + 128x = -128x + 800 + 128x$$

$$\Leftrightarrow -856x + 1271 = 800$$

$$\Leftrightarrow -856x + 1271 - 1271 = 800 - 1271$$

$$\Leftrightarrow -856x = -471$$

$$\Leftrightarrow \frac{-856x}{-856} = \frac{-471}{-856}$$

$$\Leftrightarrow x = \frac{471}{856}$$

$$S = \left\{ \frac{471}{856} \right\}$$