

Resolva as inequações, em  $\mathbb{R}$ :

1.  $4x + 5 > 2x - 3$

$$4x + 5 > 2x - 3$$

$$4x - 2x > -3 - 5$$

$$2x > -8$$

$$x > \frac{-8}{2}$$

$$x > -4$$

$$S = \{x \in \mathbb{R} / x > -4\}$$

2.  $5(x + 3) - 2(x + 1) \leq 2x + 3$

$$5 \cdot (x + 3) - 2 \cdot (x + 1) \leq 2x + 3$$

$$5x + 15 - 2x - 2 \leq 2x + 3$$

$$5x - 2x - 2x \leq 3 + 2 - 15$$

$$x \leq -10$$

$$S: \{x \in \mathbb{R} / x \leq -10\}$$

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

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

\*mmc (4, 2, 1) = 4

$$\frac{2 \cdot (x-1) - 1 \cdot (x-3)}{4} \geq \frac{4 \cdot 1}{4}$$

$$2x - 2 - x + 3 \geq \frac{4 \cdot 4}{4}$$



$$x + 1 \geq 4$$

$$x \geq 3$$

$$S: \{x \in \mathbb{R} / x \geq 3\}$$

4.  $\frac{2x-3}{2} - \frac{5-3x}{3} < 3x - \frac{1}{6}$

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

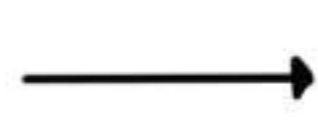
\*mmc (2, 3, 6) = 6

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

$$6x - 9 - 10 + 6x < \frac{6 \cdot (18x - 1)}{6}$$

$$12x - 19 < 18x - 1$$

$$12x - 18x < -1 + 19$$



inverte o sinal  
 $-6x < 18 \cdot (-1)$

$$x > \frac{-18}{6}$$

$$x > -3$$

$$S: \{x \in \mathbb{R} / x > -3\}$$

5.  $2(1 + 2x) - 3(1 - x) > 0$

$$2 \cdot (1 + 2x) - 3 \cdot (1 - x) > 0$$

$$2 + 4x - 3 + 3x > 0$$

$$-1 + 7x > 0$$

$$7x > 1$$

$$x > \frac{1}{7}$$

$$\Rightarrow S: \{x \in \mathbb{R} / x > \frac{1}{7}\}$$

6.  $3(4x - 7) - (4x - 9) \leq 8x - 11$

$$3 \cdot (4x - 7) - (4x - 9) \leq 8x - 11$$

$$12x - 21 - 4x + 9 \leq 8x - 11$$

$$8x - 12 \leq 8x - 11$$

$$8x \leq 8x - 11 + 12$$

$$8x \leq 8x + 1$$

-----> Esta equação será verdadeira para qualquer valor de x.

$$S: \{\forall x \in \mathbb{R}\}$$

7.  $\frac{6x-2}{3} - \frac{6x-3}{2} < 5$

$$\frac{6x-2}{3} - \frac{6x-3}{2} < 5$$

mmc (3, 2, 1) = 6

$$\frac{12x-4 - 18x+9}{6} < \frac{30}{6}$$

$$-6x + 5 < 30$$

$$-6x < 25$$

$$\Rightarrow x < \frac{25}{6} \cdot (-1)$$

$$x > -\frac{25}{6}$$

$$S: \{x \in \mathbb{R} / x > -\frac{25}{6}\}$$

8.  $\frac{3x+1}{5} - \frac{6x+1}{2} > 0$

$$\frac{3x+1}{5} - \frac{6x+1}{2} > 0$$

mmc (5, 2) = 10

$$\frac{6x+2 - 30x-5}{10} > 0$$

$$-24x - 3 > 0 \cdot 10$$

$$-24x > 3 \cdot (-1) \rightarrow 24x < -3$$

$$x < -\frac{3}{24} \div 3$$

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

$$S: \{x \in \mathbb{R} / x < -\frac{1}{8}\}$$