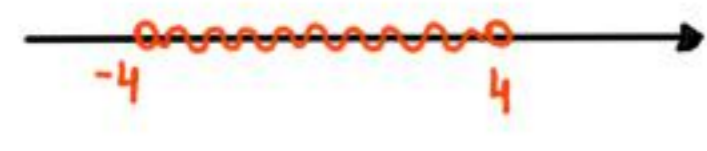


Resolva as inequações, em \mathbb{R} :

1. $|3x - 2| < 4$



$$\begin{aligned}
 & -4 < 3x - 2 < 4 \\
 & -4 + 2 < 3x < 4 + 2 \\
 & -2 < 3x < 6 \\
 & -\frac{2}{3} < x < \frac{6}{3} \quad \rightarrow \quad -\frac{2}{3} < x < 2
 \end{aligned}$$

$$S = \{x \in \mathbb{R} / -\frac{2}{3} < x < 2\}$$

2. $|2x - 3| \leq 1$



$$\begin{aligned}
 & -1 \leq 2x - 3 \leq 1 \\
 & -1 + 3 \leq 2x \leq 1 + 3 \\
 & 2 \leq 2x \leq 4 \\
 & \frac{2}{2} \leq x \leq \frac{4}{2} \quad \rightarrow \quad 1 \leq x \leq 2
 \end{aligned}$$

$$S = \{x \in \mathbb{R} / 1 \leq x \leq 2\}$$

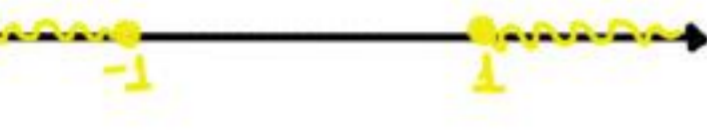
3. $|2x - 1| > 3$



$$\begin{aligned}
 & 2x - 1 < -3 \quad \text{ou} \quad 2x - 1 > 3 \\
 & 2x < -3 + 1 \quad \quad \quad 2x > 3 + 1 \\
 & 2x < -2 \quad \quad \quad 2x > 4 \\
 & x < \frac{-2}{2} \quad \rightarrow \quad x < -1 \quad \quad \quad x > \frac{4}{2} \quad \rightarrow \quad x > 2
 \end{aligned}$$

$$S = \{x \in \mathbb{R} / x < -1 \text{ ou } x > 2\}$$

4. $|2 - 3x| \geq 1$

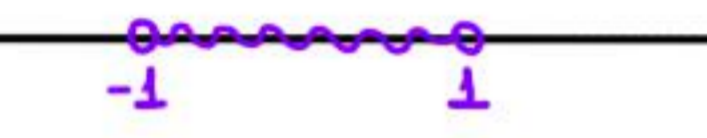


$$\begin{aligned}
 & 2 - 3x \leq -1 \quad \text{ou} \quad 2 - 3x \geq 1 \\
 & -3x \leq -1 - 2 \quad \quad \quad -3x \geq 1 - 2 \\
 & -3x \leq -3 \quad \quad \quad -3x \geq -1 \\
 & -x \leq \frac{-3}{3} \cdot (-1) \quad \quad \quad -x \geq \frac{-1}{3} \\
 & x \geq 1 \quad \quad \quad x \leq \frac{1}{3}
 \end{aligned}$$

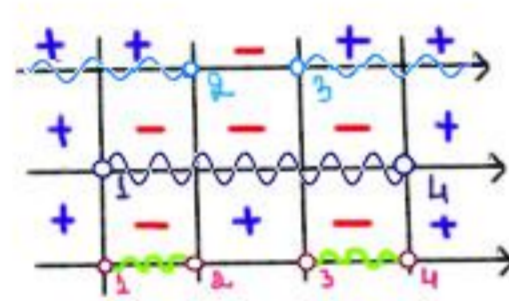
quando multiplica por -1, também inverte

$$S = \{x \in \mathbb{R} / x \leq \frac{1}{3} \text{ ou } x \geq 1\}$$

5. $|x^2 - 5x + 5| < 1$

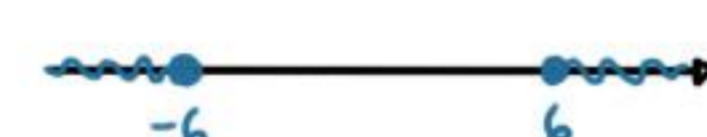


$$\begin{aligned}
 & x^2 - 5x + 5 > -1 \quad \quad \quad x^2 - 5x + 5 < 1 \\
 & x^2 - 5x + 5 + 1 > 0 \quad \quad \quad x^2 - 5x + 5 - 1 < 0 \\
 & x^2 - 5x + 6 > 0 \quad \quad \quad x^2 - 5x + 4 < 0 \\
 & \frac{2}{2} + \frac{3}{3} = -b/a = 5 \quad \quad \quad \frac{1}{2} + \frac{4}{3} = -b/a = 5 \\
 & \frac{2}{2} \cdot \frac{3}{3} = c/a = 6 \quad \quad \quad \frac{1}{2} \cdot \frac{4}{3} = c/a = 4
 \end{aligned}$$

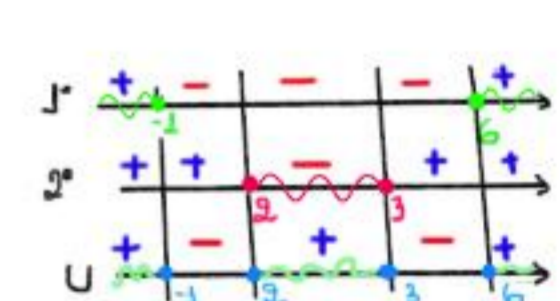


$$S = \{x \in \mathbb{R} / 1 < x < 2 \text{ ou } 3 < x < 4\}$$

6. $|x^2 - 5x| \geq 6$



$$\begin{aligned}
 & x^2 - 5x \geq 6 \quad \quad \quad x^2 - 5x \leq -6 \\
 & x^2 - 5x - 6 \geq 0 \quad \quad \quad x^2 - 5x + 6 \leq 0 \\
 & \frac{-1}{-1} + \frac{6}{6} = -b/a = 5 \quad \quad \quad \frac{2}{2} + \frac{3}{3} = -b/a = 5 \\
 & \frac{-1}{-1} \cdot \frac{6}{6} = c/a = -6 \quad \quad \quad \frac{2}{2} \cdot \frac{3}{3} = c/a = 6
 \end{aligned}$$



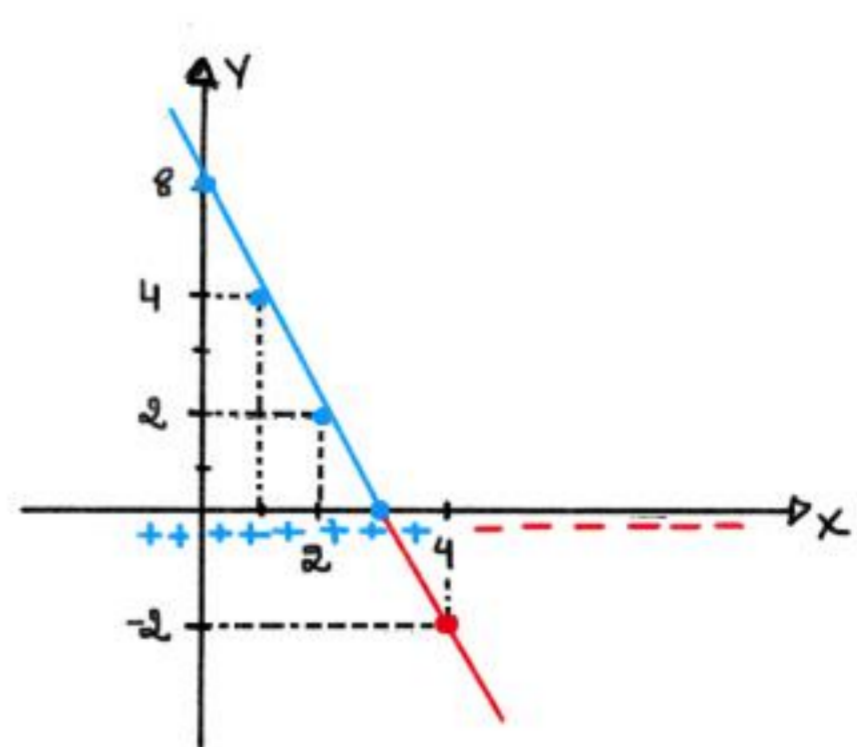
$$S = \{x \in \mathbb{R} / x \leq -1 \text{ ou } 2 \leq x \leq 3 \text{ ou } x \geq 6\}$$

7. $|x - 1| - 3x + 7 \leq 0$

função linear

Também podemos analisar pelo gráfico:
Escrevendo uma tabelinha:

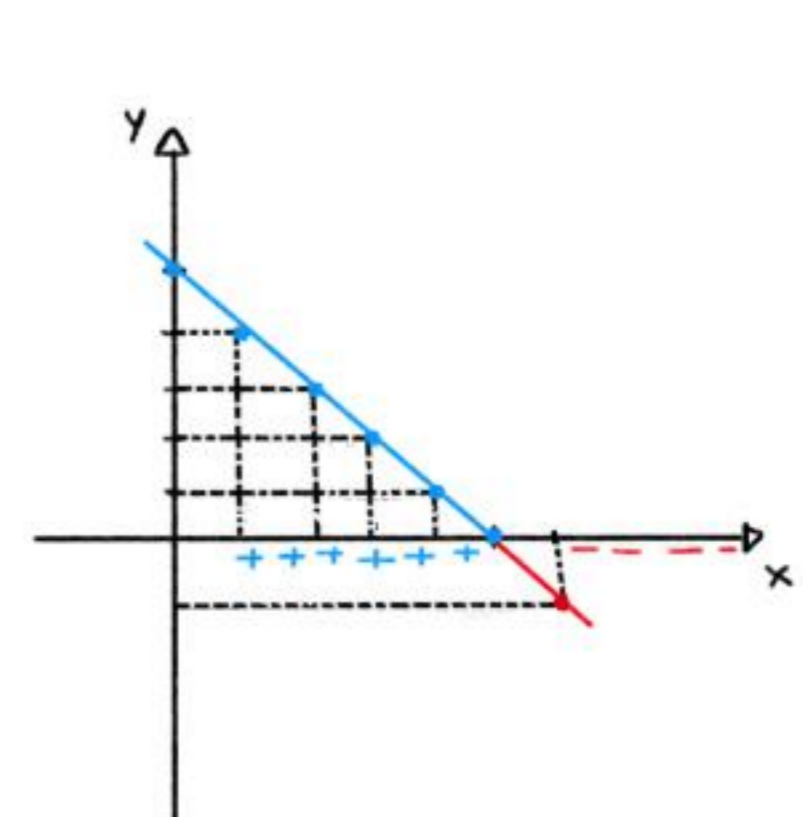
x	$ x-1 - 3x + 7$
0	$ 0-1 - 3 \cdot 0 + 7 = 8$
1	$ 1-1 - 3 \cdot 1 + 7 = 4$
2	$ 2-1 - 3 \cdot 2 + 7 = 2$
3	$ 3-1 - 3 \cdot 3 + 7 = 0$
4	$ 4-1 - 3 \cdot 4 + 7 = -2$



Podemos perceber que a partir de 3, os valores são negativos. Logo, $S = \{x \in \mathbb{R} / x \geq 3\}$

8. $|2x + 1| + 4 - 3x > 0$

x	$ 2x+1 + 4 - 3x$
0	$ 2 \cdot 0 + 1 + 4 - 3 \cdot 0 = 5$
1	$ 2 \cdot 1 + 1 + 4 - 3 \cdot 1 = 4$
2	$ 2 \cdot 2 + 1 + 4 - 3 \cdot 2 = 3$
3	$ 2 \cdot 3 + 1 + 4 - 3 \cdot 3 = 2$
4	$ 2 \cdot 4 + 1 + 4 - 3 \cdot 4 = 1$
5	$ 2 \cdot 5 + 1 + 4 - 3 \cdot 5 = 0$
6	$ 2 \cdot 6 + 1 + 4 - 3 \cdot 6 = -1$



Logo logo, os valores são negativos após o 5. Logo:

$$S = \{x \in \mathbb{R} / x < 5\}$$