

$|x-7| - |x+3| \geq 6$ Cálculo los puntos críticos $\begin{cases} x-7=0 & x=7 \\ x+3=0 & x=-3 \end{cases}$

Separamos los valores absolutos

$$|x-7| = \begin{cases} -x+7 & \text{si } x \leq 7 \\ x-7 & \text{si } x \geq 7 \end{cases}$$

$$|x+3| = \begin{cases} -x-3 & \text{si } x \leq -3 \\ x+3 & \text{si } x \geq -3 \end{cases}$$

	$x \leq -3$	$-3 < x < 7$	$x \geq 7$
$ x-7 $	$-x+7$	$-x+7$	$x-7$
$ x+3 $	$-x-3$	$x+3$	$x+3$

$$-x+7 - (-x-3) \text{ si } x \leq -3$$

$$-x+7 - (x+3) \text{ si } -3 < x < 7$$

$$x-7 - (x+3) \text{ si } x \geq 7$$

$$10 \text{ si } x \leq -3$$

$$-2x+4 \text{ si } -3 < x < 7$$

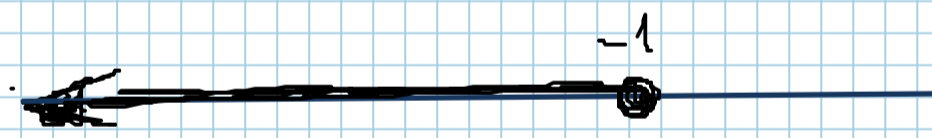
$$-4 \text{ si } x \geq 7$$

$$10 \text{ si } x \leq -3 \rightarrow 10 \geq 6 \text{ se cumple}$$

$$4-2x \text{ si } -3 < x < 7 \rightarrow 4-2x \geq 6 \cdot -2 \geq 2x \quad x \leq -1$$

$$-4 \text{ si } x \geq 7$$

$$\rightarrow -4 \geq 6 \text{ NO se cumple}$$

Solución: 

$$x \in (-\infty, -1]$$