

Warm-up

Solve

$$\textcircled{1} |x| = 2$$

Makes # inside positive

$$x = 2 \text{ or } x = -2$$

$$2 \leq x$$

$$\textcircled{32} x \geq 2$$

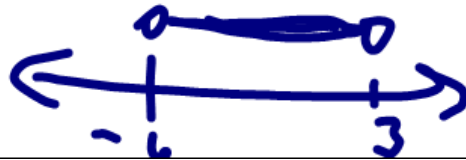
$$\textcircled{2} |x| = 13$$

$$x = 13 \text{ or } x = -13$$

$$-7 > x$$

$$\textcircled{33} x < -7 \quad \textcircled{37}$$

$$\begin{array}{r} -5 < x+1 < 4 \\ \underline{-1} \quad \quad \underline{-1} \quad \underline{-1} \\ -6 < x < 3 \end{array}$$



1.7a Absolute Value Equations

$$|x| = \begin{cases} \text{if } \# \text{ is } +, \text{ stays } + \\ \text{if } \# \text{ is } -, \text{ changes to } + \\ \text{if } \# \text{ outside is } -, \text{ no solution} \\ \text{if } \# \text{ is } 0, \text{ answer is } 0 \end{cases}$$

$$|x| = 4 \quad \text{to solve:}$$

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

$$|x-1| = 4 \quad \begin{matrix} x-1=4 & \text{or} & x-1=-4 \\ +1 & +1 & +1 & +1 \end{matrix}$$

$$x = 5 \quad \text{or} \quad x = -3$$

You try

$$|x-5| = 4 \rightarrow x-5 = 4 \quad \text{or} \quad x-5 = -4$$

$$x = 9 \quad \text{or} \quad x = 1$$

$$|5x-10| = 45 \quad \begin{matrix} 5x-10=45 & & 5x-10=-45 \end{matrix}$$

$$x = 11 \quad x = -7$$