6.6 Solve Absolute Value Inequalities

Objective: You will solve absolute value inequalities.

How do we rewrite absolute value inequalities ?

$|x-7|=5$ **Re-written:**

$|x-7|\geq 5$ **Re-written:**

$|x-7|<5$ **Re-written:**

Let's practice re-writing absolute value equations and inequalities:

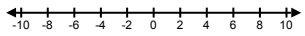
$\lvert -3+5v\rvert \geq 53$	
$\lvert -3+3n\rvert \leq 21$	
$\lvert 8x+10\rvert = 30$	
$\lvert 8a-1\rvert > 49$	
$\lvert 2n-7\rvert > 9$	
$\lvert 3x-1\rvert = 4$	
$\lvert -9v+4\rvert < 31$	
$\lvert 6-2n\rvert = 26$	

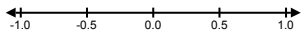
Skill #55: Solve an absolute value inequality with no steps inside the absolute value bars.

EXAMPLE 1 **Solve absolute value inequalities**

Solve the inequality. Graph your solution.

a. $|x|\geq 6$ **b.** $|x|\leq 0.5$





Your Turn !

You Try: Skill #55

Solve the inequality. Graph your solution.

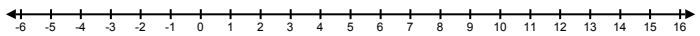
(a) $|x|\leq 8$ **(b)** $|u|<3.5$ **(c)** $|v|>\frac{2}{3}$

Don't forget to show your work and write down your answer !

Skill #56: Solve an absolute value inequalities with one step inside the absolute value bars.

EXAMPLE 2 **Solve an absolute value inequality**

Solve $|x - 5| \geq 7$. Graph your solution.



Your Turn !

You Try: Skill #56

Solve the inequality. Graph your solution.

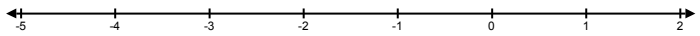
(a) $|x + 3| > 8$ **(b)** $|2w - 1| < 11$

Don't forget to show your work and write down your answer !

Skill #57: Solve an absolute value inequalities by isolating the absolute value first.

EXAMPLE 3 **Solve an absolute value inequality**

Solve $|-4x - 5| + 3 < 9$. Graph your solution.



Your Turn !

You Try: Skill #57

Solve the inequality. Graph your solution.

$3|5m - 6| - 8 \leq 13$

Don't forget to show your work and write down your answer !