

## Absolute Value INEQUALITY Notes

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It is **ESSENTIAL** that the steps for solving absolute value equations be followed in **THIS** order:

Step 1: Get the absolute value symbols alone.

Step 2: Immediately divide the problem into 2 cases.

Case 1: Drop the absolute value symbols and solve.

Case 2: → Drop the absolute value symbols.

→ Change the sign.

→ Flip the inequality.

→ Solve.

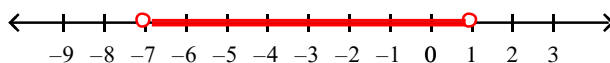
### Example

Solve:  $|3 + x| - 4 < 0$

<b>Case 1:</b> $ 3 + x  < 4$ $3 + x < 4$ $x < 1$	<b>and</b>	<b>Case 2:</b> $ 3 + x  < 4$ $3 + x > -4$ $x > -7$
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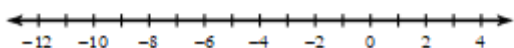
$x < 1$  and  $x > -7$   
also written as:  
 $-7 < x < 1$

(Be sure the “alligator” is eating the appropriate value.)

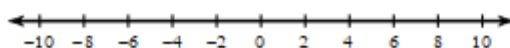


Solve each inequality and graph its solution.

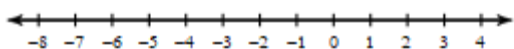
1)  $|x + 4| - 2 \geq 2$



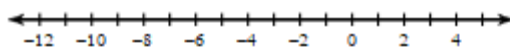
2)  $|-3v| + 6 > 24$



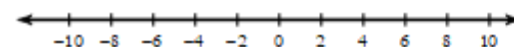
3)  $|-6a| + 4 > 10$



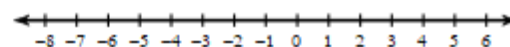
4)  $-3|x + 3| \leq -12$



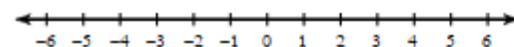
5)  $2\left|\frac{n}{6}\right| \geq 2$



6)  $\left|\frac{x}{5}\right| + 6 < 7$



7)  $4\left|\frac{x}{5}\right| - 5 \leq -1$



8)  $-1 + |x + 5| < 6$

