Solving Absolute Value Inequalities

STEPS FOR SOLVING:

1. Isolate the absolute value expression
2. Write the problem in TWO CASES
   - Case 1: Keep it the same, just drop the | |
   - Case 2: Switch the inequality symbol and switch the sign of the number of the right side of the inequality symbol
3. Solve both inequalities
4. Graph solutions on a number line

SWITCHING THE INEQUALITY SYMBOLS:

$<$ → _____

$>$ → _____

$\leq$ → _____

$\geq$ → _____

$<$ $>$ $\leq$ $\geq$

EXAMPLE 1: $|2x - 4| > 6$

Case 1: $2x - 4 > 6$

_____ __ ___

_____ __ ___

x __ ___

Case 2: $2x - 4 \leq -6$

_____ __ ___

_____ __ ___

x __ ___

Symbols Tool Kit:

$\leq$ $<$ $\geq$ $>$

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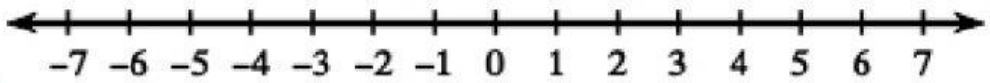


EXAMPLE 2: $2|5x + 10| \leq 40$

_____ __ ___

Case 1: _____ __ ___

_____ __ ___

_____ __ ___

x __ ___

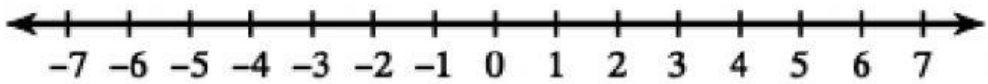
Case 2: _____ __ ___

_____ __ ___

_____ __ ___

x __ ___

Symbols Tool Kit:

$\leq$ $<$ $\geq$ $>$

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