

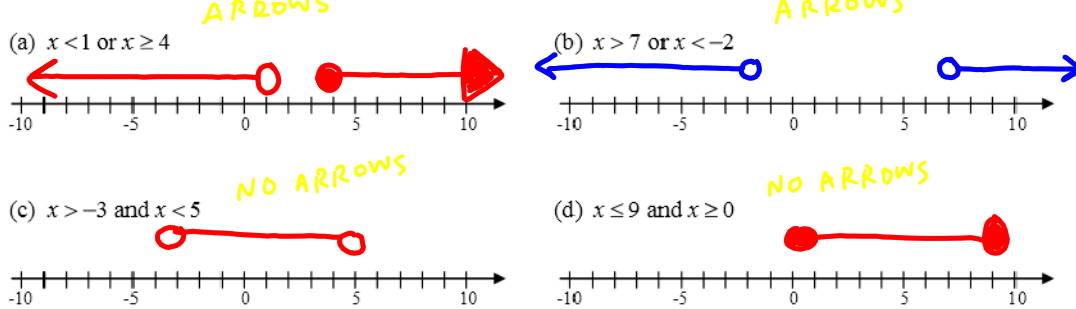
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UNIT 3 LESSON 4: MORE WORK WITH COMPOUND INEQUALITIES – HAVE NO FEAR!

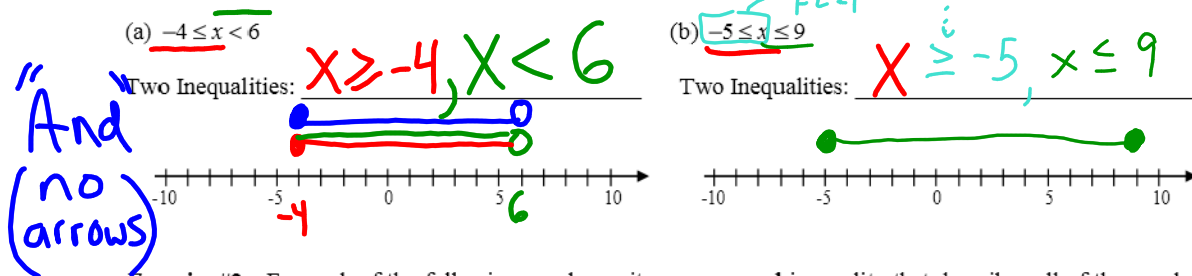
Compound inequalities are used in mathematics for a variety of purposes. It's good to get more practice in them, especially when it comes to visualizing what values of x lie in their solution sets.

You Try! Graph each of the following compound inequalities on the number lines provided.



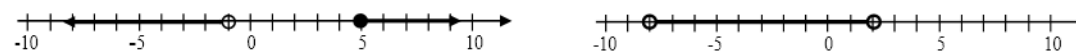
Inequalities involving AND are almost always universally written as a single inequality because these tend to show us how all values of x are between two numbers.

Exercise #1: Graph each of the following. First, rewrite as two inequalities involving the AND connector. Remember! When we are separating compound inequalities, it helps to start reading from x .



Exercise #2: For each of the following graphs, write a compound inequality that describes all of the numbers shown graphed.

(a) Compound Inequality: _____ (b) Compound Inequality: _____



We now can put together our skills at solving inequalities with compound inequalities to write very sophisticated solution sets.

Exercise #3: Consider the compound inequality given by:

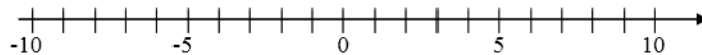
$$6x + 1 \geq 4 \quad \text{and} \quad -2x + 8 > -12$$

- (a) Determine whether each of the following values of x falls in the solution set to this compound inequality. Show the work that leads to each answer.

$$x = 5$$

$$x = -3$$

- (b) Solve the compound inequality and graph its solution on the number line shown below.



One more! Consider the compound inequality shown below:

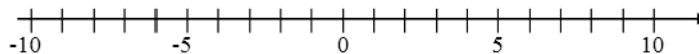
$$\frac{1}{2}(x+4) < 5 \quad \text{or} \quad -2(x-4) \leq 14$$

(a) Show that each of the following values of x solve the compound inequality.

$$x = 0$$

$$x = 8$$

(b) Solve this compound inequality, graph the solution on the number line. What can you say about the solution set of this inequality?



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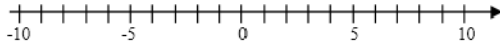
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HW

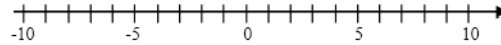
PRACTICE! HOMEWORK! LET'S GET TO IT.

1. Graph each of the following compound inequalities on the number lines provided. If it's an AND statement write the inequalities as a single statement.

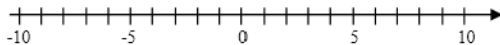
(a) $x > 5$ or $x \leq 3$



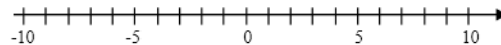
(b) $x \leq -7$ and $x < 10$



(c) $x \leq 3$ or $x < -6$



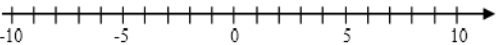
(d) $x < 3$ and $x > -5$



2. Graph each of the following. First, rewrite as two inequalities involving the AND connector.

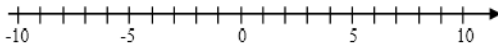
(a) $-7 \leq x < 5$

Two Inequalities: _____



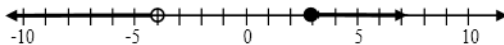
(b) $-2 \leq x \leq 6$

Two Inequalities: _____



3. For each of the following graphs, write a compound inequality that describes all of the numbers shown on the graph.

(a) Compound Inequality: _____



(b) Compound Inequality: _____

