

Name: _____

Date: _____

MORE WORK WITH COMPOUND INEQUALITIES COMMON CORE ALGEBRA I

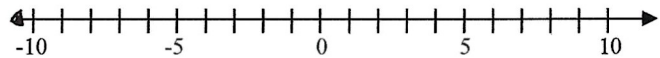
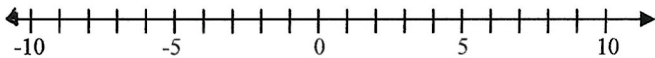


Compound inequalities are used in mathematics for a variety of purposes. It's good to get more practice in them, especially when it comes to visualizing what values of x lie in their solution sets.

Exercise #1: Graph each of the following compound inequalities on the number lines provided. For (c) and (d) write the inequalities as a single statement.

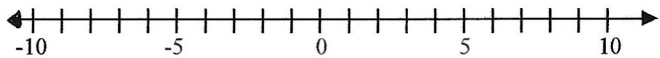
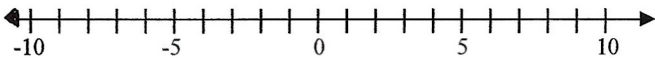
(a) $x < 1$ or $x \geq 4$

(b) $x > 7$ or $x < -2$



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

(d) $x \leq 9$ and $x \geq 0$



Single Inequality: _____

Single Inequality: _____

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.

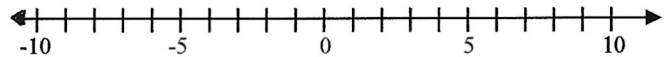
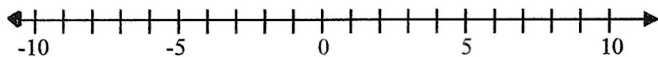
Exercise #2: Graph each of the following. First, rewrite as two inequalities involving the AND connector.

(a) $-4 \leq x < 6$

(b) $-5 \leq x \leq 9$

Two Inequalities: _____

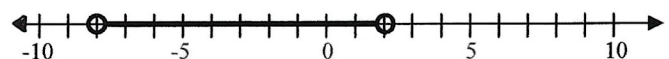
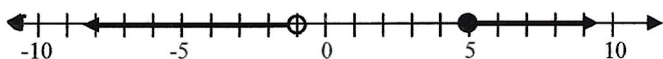
Two Inequalities: _____



Exercise #3: For each of the following graphs, write a compound inequality that describes all of the numbers shown graphed.

(a) Compound Inequality: _____

(b) Compound Inequality: _____



Graphing Compound Inequalities

ES1

Graph the compound inequalities.

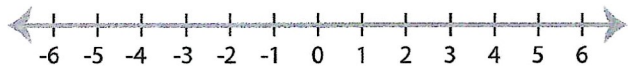
1) $x \leq 0$ or $x > 2$



2) $x > -1$ and $x < 3$



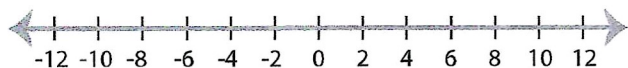
3) $-4 < x \leq 4$



4) $x \geq 5$ or $x \leq -6$



5) $10 > x > -8$



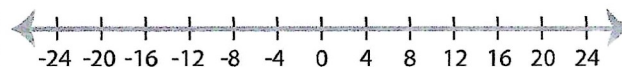
6) $x < 9$ and $x \geq 3$



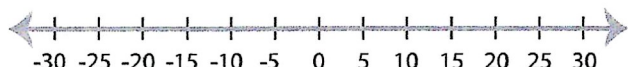
7) $x \leq -2$ and $x \geq -5$



8) $x \geq 12$ or $x < -16$



9) $x > 10$ and $x < 20$



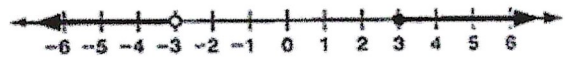
10) $-3 \leq x < 1$



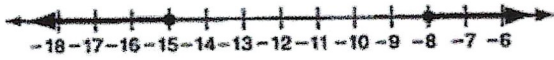
1. Write the compound inequality shown by the graph.



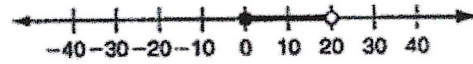
2. Write the compound inequality shown by the graph.



3. Write the compound inequality shown by the graph.



4. Write the compound inequality shown by the graph.



5. Solve the compound inequality, then graph the solution and write it in interval notation.

$$-15 < x - 8 < -4$$



6. Solve the compound inequality, then graph the solution and write it in interval notation.

$$12 \leq 4n < 28$$



7. Solve the compound inequality, then graph the solution and write it in interval notation.

$$-2 \leq 3b + 7 \leq 13$$



8. Solve the compound inequality, then graph the solution and write it in interval notation.

$$x - 3 < -3 \text{ or } x - 3 \geq 3$$



9. Solve the compound inequality, then graph the solution and write it in interval notation.

$$5k \leq -20 \text{ or } 2k \geq 8$$



10. Solve the compound inequality, then graph the solution and write it in interval notation.

$$2s + 3 \leq 7 \text{ or } 3s + 5 > 26$$



11. The human ear can distinguish sounds between 20 Hz and 20,000 Hz, inclusive. Write a compound inequality that represents this problem. Then graph the solution and write it in interval notation.



12. For a man to box as a welterweight, he must weigh more than 140 lbs., but at most 147 lbs. Write a compound inequality that represents this problem. Then graph the solution and write it in interval notation.

