

Name: Key

Date: _____

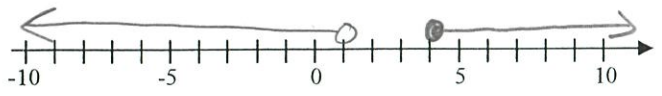
MORE WORK WITH COMPOUND INEQUALITIES
COMMON CORE ALGEBRA I



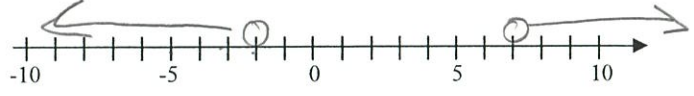
Compound inequalities are used in mathematics for a variety of purposes. It's good to get more practice in them, especially when it comes to visualizing what values of x lie in their solution sets.

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. and

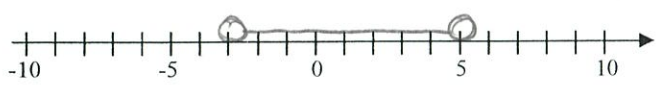
(a) $x < 1$ or $x \geq 4$



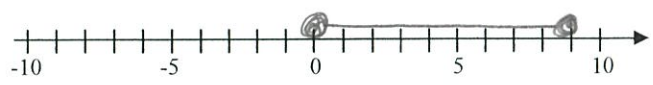
(b) $x > 7$ or $x < -2$



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



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



Single Inequality: $-3 < x < 5$

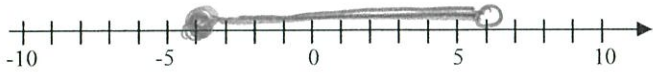
Single Inequality: $0 \leq x \leq 9$

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) $-4 \leq x < 6$

Two Inequalities: $x \geq -4$ and $x < 6$



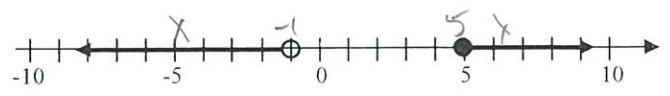
(b) $-5 \leq x \leq 9$

Two Inequalities: $x \geq -5$ and $x \leq 9$

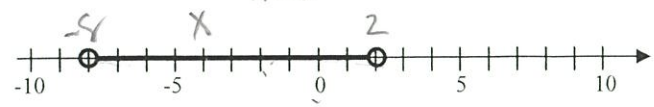


Exercise #3: For each of the following graphs, write a compound inequality that describes all of the numbers shown graphed.

(a) Compound Inequality: $x < -1$ or $x \geq 5$



(b) Compound Inequality: $-8 < x < 2$



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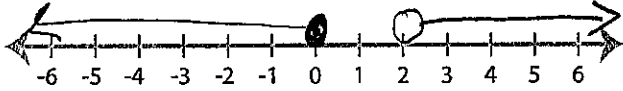
(2)

Graphing Compound Inequalities

ES1

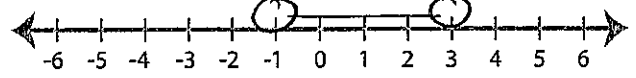
Graph the compound inequalities.

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

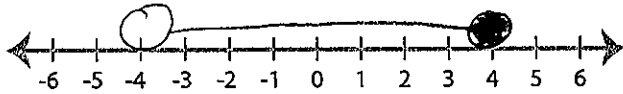


2) $x > -1$ and $x < 3$

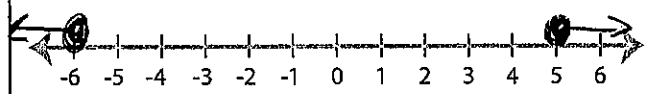
write as single inequality 1st in numerical order



3) $-4 < x \leq 4$ 'And'



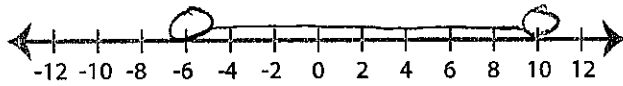
4) $x \geq 5$ or $x \leq -6$



5) $10 > x > -8$

$-8 < x < 10$

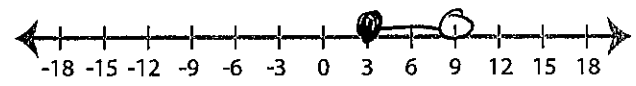
swap order so #'s are in numerical order



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

$3 \leq x < 9$

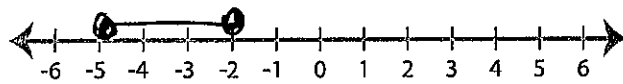
write as single inequality 1st in numerical order



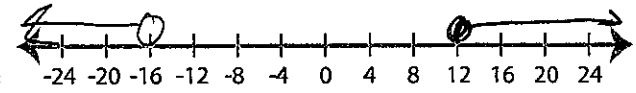
7) $x \leq -2$ and $x \geq -5$

$-5 \leq x \leq -2$

write as single inequality 1st in numerical order



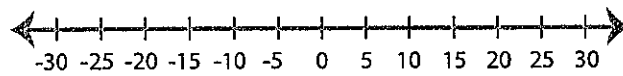
8) $x \geq 12$ or $x < -16$



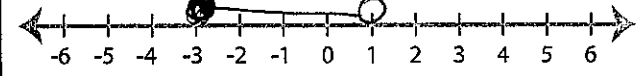
9) $x > 10$ and $x < 20$

$10 < x < 20$

write as single inequality 1st in numerical order

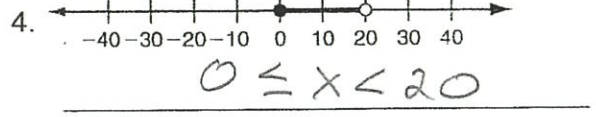
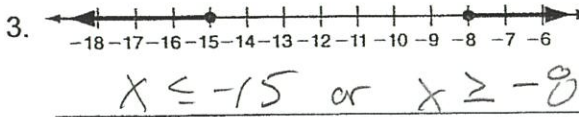
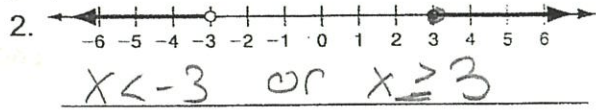
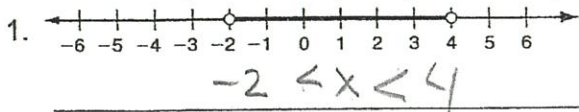


10) $-3 \leq x < 1$

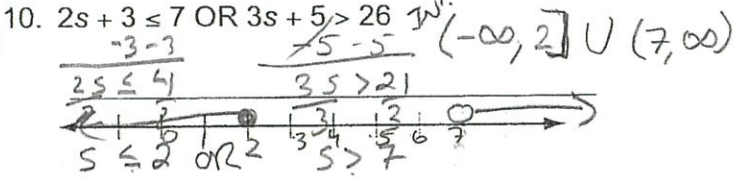
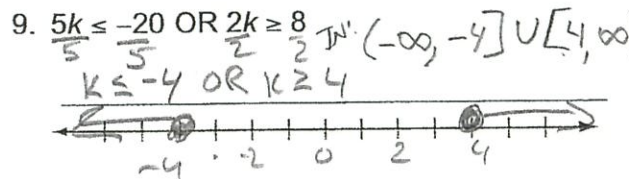
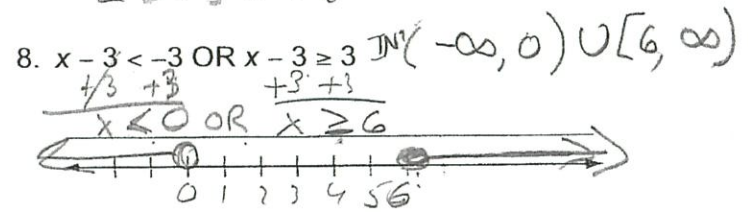
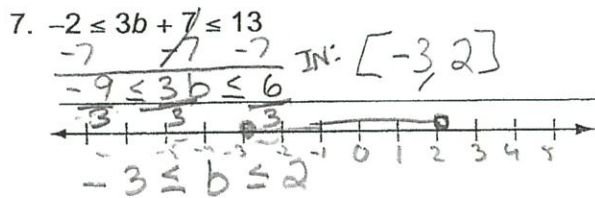
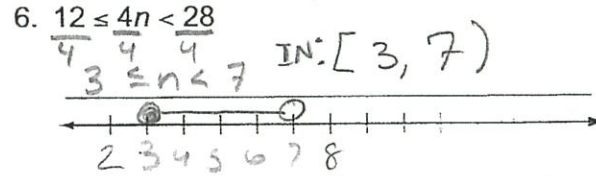
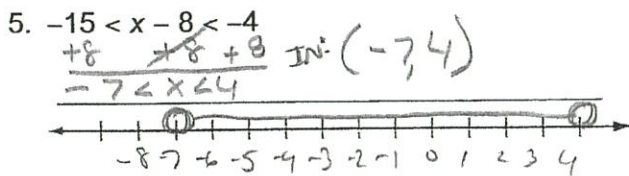


Additional Practice

Write the compound inequality shown by each graph.



Solve each compound inequality and graph the solutions.



Write a compound inequality for each problem. Graph the solutions.

