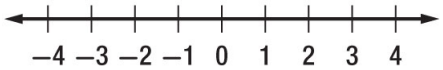
NAME _____ DATE _____ PERIOD _____

5-4 Notes *Solving Compound Inequalities*

Inequalities Containing *and* A compound inequality containing *and* is true only if both inequalities are true. It is the **intersection** of the graphs of the two inequalities. Every solution of the compound inequality must be a solution of both inequalities.

Example 1: Graph the solution set of $x < 2$ and $x \geq -1$. Then graph the solution set.

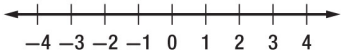
Example 2: Solve $-1 < x + 2 < 3$.



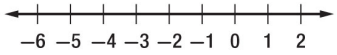
Exercises

Graph the solution set of each compound inequality.

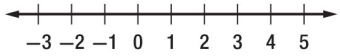
1. $b > -1$ and $b \leq 3$



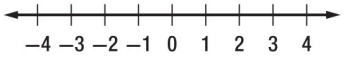
2. $-3 < d$ and $d < 2$



3. $-2 \leq p < 4$

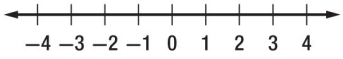


4. $2 \geq q \geq -5$

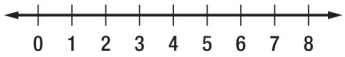


Solve each compound inequality. Then graph the solution set.

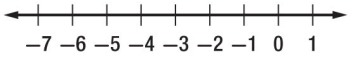
5. $4 < w + 3 \leq 5$



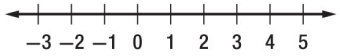
6. $-3 \leq p - 5 < 2$



7. $-4 < x + 2 \leq -2$



8. $-4 < 2x - 2 \leq -2$



NAME _____ DATE _____ PERIOD _____

Solving Compound Inequalities

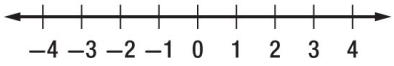
Inequalities Containing *or* A compound inequality containing *or* is true if one or both of the inequalities are true. It is the **union** of the graphs of the two inequalities. The union can be found by graphing both inequalities on the same number line.

Example: Solve $2a + 1 < 11$ or $a > 3a + 2$. Then graph the solution set.

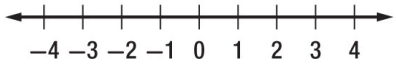
Exercises

Graph the solution set of each compound inequality.

1. $b > 2$ or $b \leq -3$

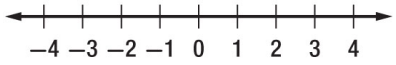


2. $3 \geq q$ or $q \leq 1$

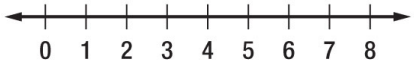


Solve each compound inequality. Then graph the solution set.

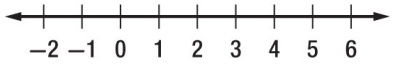
7. $3 < 3w$ or $3w \geq 9$



8. $-3p + 1 \leq -11$ or $p < 2$



10. $2y + 2 < 12$ or $y - 3 \geq 2y$



12. $3a + 2 \geq 5$ or $7 + 3a < 2a + 6$