Unit 0 Back to Basics Review Day 10 Compound Inequalities (PH 3-5)

Name:	
Date:	Hour:

Two inequalities connected by the word **AND** or the word **OR** form a **compound inequality**.

For example, you can write the compound inequality $x \ge -5$ and $x \le 5$ as $-5 \le x \le 5$.

The graph above shows that a solution of $-5 \le x \le 5$ is in the **overlap** of the solutions of the inequality $x \ge -5$ and the inequality $x \ge 5$. You can read $-5 \le x \le 5$ as "x is greater than or equal to -5 and less than or equal to 5."

Example 1: Sketch the graph of each compound inequality.



A solution of a compound inequality joined by **AND** is any number that makes <u>both</u> inequalities true. One way you can solve a compound inequality is by writing the two separate inequalities.

Example 2: Solve a compound inequality using **AND**. Graph the solutions.

a. -3 < 2x - 1 < 7

You could also solve an inequality like $-4 < \frac{r-5}{2} \le -1$ by working on all three parts at the same time.

b.
$$-4 < \frac{r-5}{2} \le -1$$





A solution of a compound inequality joined by **OR** is any number that makes <u>either</u> inequality true. For example, you can graph the compound inequality as shown in the diagram.

Example 3: Sketch the graph of each compound inequality.



Example 4: Solve a compound inequality using **OR**. Graph the solutions.

3x + 2 < -7 or -4x + 5 < 1



Homework: Complete exercises 1-9 below AND page 164 #5-19 odd and #25-33 odd

Graph each compound inequality.

