	Name:	Date:
	Topic/Objective: Solve Compound Inequalities	Class/Period:

How do you Solve Compound Inequalities?

Questions/Main Ideas:	Notes:
Definition:	A Compound Inequality consists of two separate inequalities joined by the word and or or.
What does the graph look like with the word *and*? Intersection of two graphs	$x > -2$  and $x \leq 1$  $-2 < x \leq 1$ 
What does the graph look like with the word *or*?	$x \geq 0$  or $x < -1$  $x \geq 0$ or $x < -1$ 
Translate the verbal phrase into an inequality then graph.	All real numbers that are greater than -2 *and* less than 3. Inequality: $x > -2$ and $x < 3$ $-2 < x < 3$ Graph:  All real numbers that are less than 0 *or* greater than or equal to 2. Inequality: $x < 0$ or $x \geq 2$ Graph: 

Solving a compound inequality with *and:*

To solve:

1a.) separate the inequalities
Or you can....

1b.) Perform the same operation at the same time.

2.) Graph

1.) $2 < x + 5 < 9$

$2 < x + 5$ and $x + 5 < 9$
$-5 \quad -5$ $\quad -5 \quad -5$

$-3 < x$ and $x < 4$

$-3 < x < 4$

2.) $-5 \leq -x - 3 \leq 2$
$+3 \quad +3 \quad +3$

$-2 \leq -x \leq 5$
$-1 \quad -1 \quad -1$

$2 \geq x \geq -5$

Solving a compound inequality with the word *or:*

To solve:

1.) Solve the two inequalities separately.

2.) Graph

3.) $2x + 3 < 9$ *or* $3x - 6 > 12$
$-3 \quad -3$ $\quad +6 \quad +6$

$\frac{2x}{2} < \frac{6}{2}$ $\quad \frac{3x}{3} > \frac{18}{3}$

$x < 3$ or $x > 6$

4.) $3h + 1 < 5$ *or* $2h - 5 > 7$

Now you try.....Solve and graph your solution.

1.) All real numbers that are less than -1 or greater than or equal to 4. $x < -1$ or $x \geq 4$

2.) All real numbers that are greater than or equal to -3 and less than 5. $x \geq -3$ and $x < 5$

$-3 \leq x < 5$

3.) $-14 < x - 8 < -1$

$+8 \quad +8 \quad +8$

$-6 < x < 7$

4.) $-1 \leq -5t + 2 \leq 4$

5.) $4c + 1 \leq -3$ *or* $5c - 3 > 17$

$-1 \quad -1 \quad +3 \quad +3$

$\frac{4c}{4} \leq \frac{-4}{4}$ or $\frac{5c}{5} > \frac{20}{5}$

$c \leq -1$ or $c > 4$

6.) $3x - 2 \leq -11$ *or* $2x + 8 > 16$

Summarize two major points in the lesson: