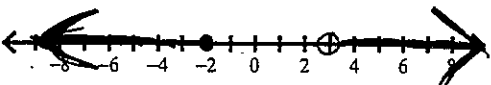
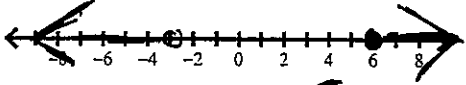
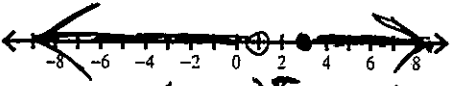
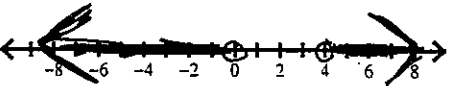
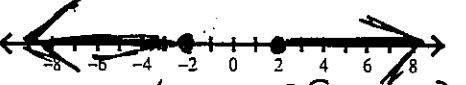
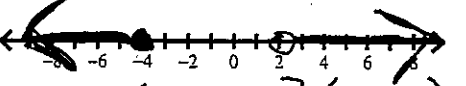


Name: Key

Date: _____

Topic: _____

Class: _____

Main Ideas/Questions	Notes/Examples
COMPOUND INEQUALITIES	
TYPE I: "OR"	"or" inequalities have a tendency to graph <u>outward</u>
	<p>Example</p> $x \leq -2 \text{ OR } x > 3$  <p>Interval Notation: $(-\infty, -2] \cup (3, \infty)$</p>
SOLVING "OR" INEQUALITIES	<p>Directions: Solve, graph, then write the solution in interval notation.</p> <p>1. $x - 4 < -7$ or $\frac{2x}{2} \geq \frac{12}{2}$ $+4 \quad +4$ $x < -3$ $x \geq 6$</p>  <p>Interval Notation: $(-\infty, -3) \cup [6, \infty)$</p>
	<p>2. $\frac{-3x}{-3} \leq \frac{-9}{-3}$ or $\frac{5+x}{-5} < \frac{6}{-5}$ $x \geq 3$ $x < 1$</p>  <p>Interval Notation: $(-\infty, 1) \cup [3, \infty)$</p>
	<p>3. $2x + 9 > 17$ or $5x + 10 < 10$ $-9 \quad -9$ $-10 \quad -10$ $2x > 8$ $5x < 0$ $x > 4$ $x < 0$</p>  <p>Interval Notation: $(-\infty, 0) \cup (4, \infty)$</p>
	<p>4. $7x - 14 \geq 0$ or $4x + 5 \leq -3$ $+14 \quad +14$ $-5 \quad -5$ $7x \geq 14$ $4x \leq -8$ $x \geq 2$ $x \leq -2$</p>  <p>Interval Notation: $(-\infty, -2] \cup [2, \infty)$</p>
	<p>5. $-3(2x + 1) < -15$ or $1 - x \geq 5$ $-6x + (-3) < -15$ $-1 \quad -1$ $-6x < -12$ $-x \geq 4$ $x > 2$ $x \leq -4$</p>  <p>Interval Notation: $(-\infty, -4] \cup (2, \infty)$</p>

TYPE 2: "AND"	"and" inequalities have a tendency to graph <u>inward</u>	
	<p>Example</p> $x \geq -6$ AND $x \leq 1$	<p>Interval Notation: $[-6, 1]$</p>

REWRITING "AND" INEQUALITIES

Because the solutions to an "and" inequality fall between two endpoints, they are frequently written in a more condensed form.

Example: $x \geq -6$ and $x \leq 1 \Rightarrow -6 \leq x \leq 1$

SOLVING "AND" INEQUALITIES

6. $2 \leq x + 4 < 9$
 $\quad \quad \quad -4 \quad \quad -4 \quad \quad -4$
 $-2 \leq x < 5$

Interval Notation: $[-2, 5)$

7. $-27 < 7x - 13 < 8$
 $\quad \quad \quad +13 \quad \quad +13 \quad \quad +13$
 $-\frac{14}{7} < \frac{7x}{7} < \frac{21}{7}$
 $-2 < x < 3$

Interval Notation: $(-2, 3)$

8. $-16 \leq 3x - 4 \leq 2$
 $\quad \quad \quad +4 \quad \quad +4 \quad \quad +4$
 $-\frac{12}{3} \leq \frac{3x}{3} \leq \frac{6}{3}$
 $-4 \leq x \leq 2$

Interval Notation:

9. $-1 < \frac{2}{3}x + 1 \leq 5$
 $\quad \quad \quad -1 \quad \quad -1 \quad \quad -1$
 $\frac{3}{2} \cdot -2 < \frac{2}{3}x \leq \frac{3}{2} \cdot 4$
 $-3 < x \leq 6$

Interval Notation: $(-3, 6]$

10. $-2 < 2(x - 6) \leq 4$
 $\quad \quad \quad -2 < 2x - 12 \leq 4$
 $\quad \quad \quad +12 \quad \quad +12 \quad \quad +12$
 $\frac{10}{2} < \frac{2x}{2} \leq \frac{16}{2}$
 $5 < x \leq 8$

Interval Notation: