

Name: KEY Date: \_\_\_\_\_ Period: \_\_\_\_\_

**Unit 2 – Solving Inequalities Review**

Must show work for credit

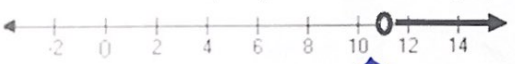

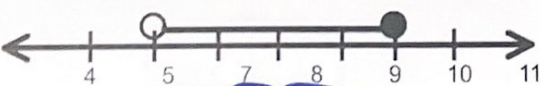
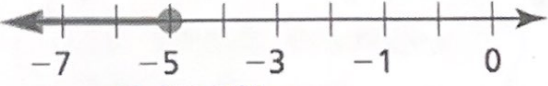
Level 2 Terminology: I can recognize specific terminology such as variable, inequality, and solution.

Which inequality symbols mean the number is included as a possible answer (is in the solution set)?

$\geq$  or  $\leq$  need =

Which inequality symbols mean the number is NOT included as a possible answer (is NOT in the solution set)?

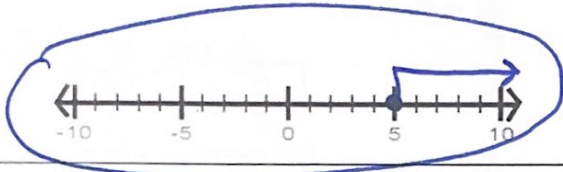
$>$  or  $<$

Level 2 Solutions to Inequalities: I can answer basic questions about inequalities.	
<p>1. Circle the possible solutions to the inequality: <math>x \leq 10.5</math></p> <p><input checked="" type="checkbox"/> 10  <input checked="" type="checkbox"/> 10.5  <input type="checkbox"/> 11  <input type="checkbox"/> 11.5</p> <p>less than or =</p>	<p>2. Circle the possible solutions to the inequality: <math>x &gt; -3</math></p> <p><input type="checkbox"/> -3  <input checked="" type="checkbox"/> 3  <input checked="" type="checkbox"/> 0  <input type="checkbox"/> -5</p> <p>greater than</p>
<p>3. Write the inequality that matches the graph.</p>  <p><math>x &gt; 11</math></p> <p>11 is boundary point</p>	<p>4. Circle ALL of the inequalities where -2 could be a solution</p> <p><input type="checkbox"/> <math>x &gt; -2</math>  <input type="checkbox"/> <math>x &lt; -2</math>  <input checked="" type="checkbox"/> <math>x \geq -2</math>  <input checked="" type="checkbox"/> <math>x \leq -2</math>  <input type="checkbox"/> <math>x &gt; -1</math>  <input type="checkbox"/> <math>x &lt; -3</math></p>
<p>5. Circle all numbers that are solutions to the graphed inequality.</p>  <p><input type="checkbox"/> 5  <input type="checkbox"/> 4  <input checked="" type="checkbox"/> <math>\frac{1}{2}</math>  <input checked="" type="checkbox"/> -50</p> <p>4 boundary point</p>	<p>6. Would <math>x = -13</math> be a solution to the inequality <math>3x + 2 &gt; -6</math>?</p> <p><math>3(-13) + 2 &gt; -6</math> ?  <math>-39 + 2 &gt; -6</math>  <math>-37 &gt; -6</math> NO          not a solution</p>
<p>7. Write the inequality that matches the graph</p>  <p><math>5 &lt; x \leq 9</math></p>	<p>8. Write the inequality that matches the graph</p>  <p><math>x \leq -5</math></p>

9. Solve the following inequality and graph it on a number line:

$$5 \cdot \frac{x}{5} \geq 1 \cdot 5$$

$$x \geq 5$$



10. Solve the following inequality and graph it on a number line:

$$-3x + 5 < -16$$

$$\begin{array}{r} -5 \quad -5 \\ \hline -3x < -21 \\ \hline -3 \quad -3 \end{array}$$

$$x > 7$$



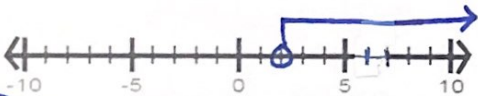
Level 3 Multistep Inequalities: I solve one variable inequalities.

11. Solve and graph the inequality.  
 $2(3x - 1) > 10$

$$\begin{array}{r} x - 2 > 10 \\ +2 \quad +2 \\ \hline \end{array}$$

$$\begin{array}{r} 6x > 12 \\ \hline 6 \quad 6 \end{array}$$

$$x > 2$$



12. Solve and graph the inequality.  
 $-8x + 2(x - 5) > 20$

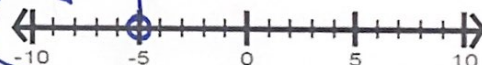
$$-8x + 2x - 10 > 20$$

$$-6x - 10 > 20$$

$$+10 \quad +10$$

$$\begin{array}{r} -6x > 30 \\ \hline -6 \quad -6 \end{array}$$

$$x < -5$$



13. Solve and graph the inequality. You do not need to graph.

$$a - 6 \leq 15 + 8a$$

$$+6 \quad +6$$

$$a \leq 21 + 8a$$

$$\begin{array}{r} -8a \quad -8a \\ \hline \end{array}$$

$$\begin{array}{r} -7a \leq 21 \\ \hline -7 \quad -7 \end{array}$$

$$a \geq -3$$

14. Solve the inequality. You do not need to graph the solution.

$$-2(5 + 6n) < 6(8 - 2n)$$

$$-10 - 12n < 48 - 12n$$

$$+12n \quad +12n$$

$$-10 < 48$$

always

all real numbers

Solve the following compound inequalities and graph the solutions.

15.  $-20 < 4x - 2 \leq 8$

$$\begin{array}{r} -20 < 4x - 2 \text{ and } 4x - 2 \leq 8 \\ +2 \quad +2 \qquad \qquad +2 +2 \\ \hline -18 < 4x \qquad \qquad 4x \leq 10 \\ \frac{-18}{4} < \frac{4x}{4} \qquad \qquad x \leq \frac{10}{4} \\ -\frac{9}{2} < x \text{ and } \qquad \qquad x \leq \frac{5}{2} \\ \boxed{-\frac{9}{2} < x \leq \frac{5}{2}} \end{array}$$

16.  $5z - 3 > -18$  OR  $-2z - 1 > 15$

$$\begin{array}{r} 5z - 3 > -18 \qquad \text{OR} \qquad -2z - 1 > 15 \\ +3 \quad +3 \qquad \qquad \qquad +1 \quad +1 \\ \hline 5z > -15 \qquad \qquad \qquad -2z > 16 \\ \boxed{z > -3} \qquad \qquad \qquad \text{OR} \qquad \boxed{z < -8} \end{array}$$

Level 3 Word Problems: I can write and solve inequalities that model real life situations.

17. A number minus 6 is no more than 23. Write an inequality and solve. You do not need to graph your solution. *If you do*

$$\begin{array}{r} n - 6 \leq 23 \\ +6 \quad +6 \\ \hline n \leq 29 \end{array}$$

18. The sum of a number and  $\frac{2}{3}$  is greater than 4. Write an inequality and solve. You do not need to graph your solution. *graph if you did*

$$\begin{array}{r} n + \frac{2}{3} > 4 \leftarrow \frac{12}{3} \\ -\frac{2}{3} \quad -\frac{2}{3} \\ \hline n > \frac{10}{3} \end{array}$$

19. The school baseball record for no-hitter innings is 112 in a season. This year's team currently has 87 no-hitters. What are the possible numbers of additional no-hitter innings the team can achieve to have the same or more than the schools record?  
*x: number of innings*  
Write an inequality to model the no-hitter innings.

$$x + 87 \geq 112$$

Solve the inequality.

$$\begin{array}{r} x + 87 \geq 112 \\ -87 \quad -87 \\ \hline x \geq 25 \end{array}$$

*x ≥ 25*  
greater than 25 innings

20. In the closet, there is room for no more than 30 shirts. You currently have 17. How many more shirts can you add?  
*x: # of shirts*  
Write an inequality that models the total number of shirts in the closet.

$$\begin{array}{r} 17 + x \leq 30 \\ -17 \quad -17 \\ \hline x \leq 13 \end{array}$$

Solve the inequality.

*x ≤ 13*  
less than 13 shirts