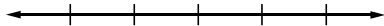
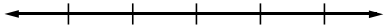


Name:	Date:
Topic:	Class:

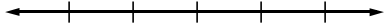
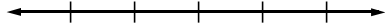


Main Ideas/Questions	Notes
<b>Graphing Inequalities</b>	<ul style="list-style-type: none"> <li>Use a _____ dot for _____ or _____ symbols.</li> <li>Use an _____ dot for _____ or _____ symbols.</li> </ul>
<b>Interval Notation</b>	<p><b>Interval notation</b> is a way to write the solution to an inequality using <u>infinity symbols</u>, <u>parentheses</u>, and <u>brackets</u>.</p> <ul style="list-style-type: none"> <li><b>Parentheses</b> indicate “not included” or “open”</li> <li><b>Brackets</b> indicate “included” or “closed”</li> </ul>

**Directions:** Graph each inequality and write the solution in interval notation.

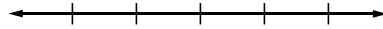
<p><b>1.</b> <math>x \geq 8</math></p>  <p style="text-align: center;"><b>Interval Notation:</b> _____</p>	<p><b>2.</b> <math>a &lt; -1</math></p>  <p style="text-align: center;"><b>Interval Notation:</b> _____</p>
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<b>Solving Inequalities</b>	<ul style="list-style-type: none"> <li>Follow the same rules to solve an inequality as you do an equation.</li> <li>_____ the inequality symbol if you <b>multiply or divide</b> by a _____ number.</li> </ul>
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**Examples:** Solve, graph, and write the solution to each inequality in interval notation.

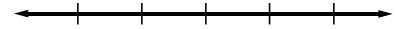
<p><b>3.</b> <math>5v + 1 &gt; 7v - 17</math></p>  <p style="text-align: center;"><b>Interval Notation:</b> _____</p>	<p><b>4.</b> <math>21x - 3(5x + 9) \geq 7</math></p>  <p style="text-align: center;"><b>Interval Notation:</b> _____</p>
<p><b>5.</b> <math>12p + 52 &gt; -2(4 - 2p)</math></p>  <p style="text-align: center;"><b>Interval Notation:</b> _____</p>	<p><b>6.</b> <math>3 - (4m + 1) \geq 5m - 25</math></p>  <p style="text-align: center;"><b>Interval Notation:</b> _____</p>

7.  $3(8x - 9) > 4(6x + 1)$



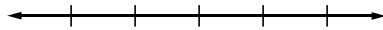
Interval Notation: \_\_\_\_\_

8.  $10(a - 3) - 13a \leq 9(a - 8)$



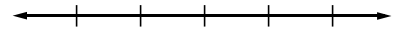
Interval Notation: \_\_\_\_\_

9.  $8 - 7(2r + 3) \leq 3(r - 10)$



Interval Notation: \_\_\_\_\_

10.  $-3(2p + 8) < -4(2p + 6)$



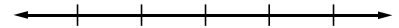
Interval Notation: \_\_\_\_\_

11.  $11x - 4 \leq 6x - (3 - 5x)$



Interval Notation: \_\_\_\_\_

12.  $\frac{4 + 5(2w - 10)}{-2} < w + 7$



Interval Notation: \_\_\_\_\_

## Set Notation

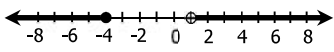
**Set Notation** is another way of expressing the solution to an inequality.

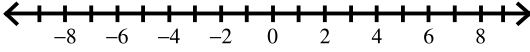
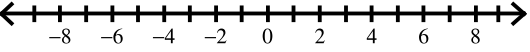
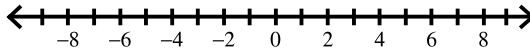
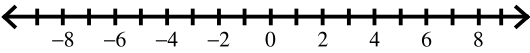
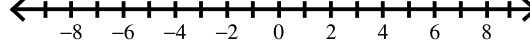
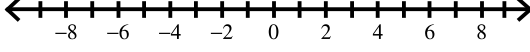
**Example:**  $x > 5$       **Set Notation:** \_\_\_\_\_

**Read as** \_\_\_\_\_

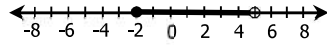
\_\_\_\_\_

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes
<b>Compound Inequalities</b>	
<b>TYPE 1: "OR"</b>	 <p>Written: _____</p> <p>Inf. Notation: _____</p>
<b>Solving "Or" Inequalities</b>	To solve "or" inequalities, solve each part, then graph on a number line to show the solutions.

<b>Directions:</b> Solve, graph, and write each solution in interval notation.	
<b>1.</b> $3x + 4 \leq 10$ or $5x > 45$   <p>Interval Notation: _____</p>	<b>2.</b> $n + 6 \leq 5$ or $9n + 7 > 43$   <p>Interval Notation: _____</p>
<b>3.</b> $-3y + 8 \leq -7$ or $10y - 3 \leq -33$   <p>Interval Notation: _____</p>	<b>4.</b> $6 - 2a < 8$ or $\frac{a}{2} + 1 < -2$   <p>Interval Notation: _____</p>
<b>5.</b> $3(5 - 2k) < -12$ or $\frac{1}{3}(15k - 9) \leq -3$   <p>Interval Notation: _____</p>	<b>6.</b> $\frac{8-x}{-3} \leq -5$ or $5 - \frac{3}{2}x < -1$   <p>Interval Notation: _____</p>

**TYPE 2:  
"AND"**



Written: \_\_\_\_\_

Int. Notation: \_\_\_\_\_

**Rewriting "And" Inequalities**

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

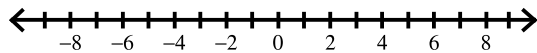
Example: \_\_\_\_\_  $\Rightarrow$  \_\_\_\_\_

**Solving "And" Inequalities**

If the "and" inequality is written out, solve each part separately.  
If condensed, you can solve it all together, working inside out.  
Then, graph to show all possible solutions.

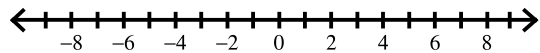
**Directions:** Solve, graph, and write each solution in interval notation.

**7.**  $2x + 3 > -9$  and  $8x - 2 < 30$



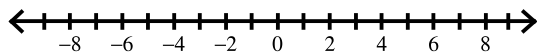
Interval Notation:

**8.**  $2w + 1 \leq 11$  and  $1 - 5w < 41$



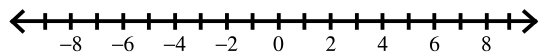
Interval Notation:

**9.**  $-2 \leq a - 1 \leq 6$



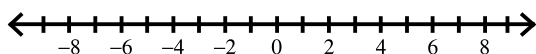
Interval Notation:

**10.**  $4 < 3p + 4 < 19$



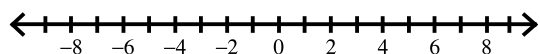
Interval Notation:

**11.**  $28 > -2 - 10m \geq -7$



Interval Notation:

**12.**  $-5 \leq \frac{12-x}{-2} < -2$



Interval Notation: