

## ***Graphing Linear Inequalities in Two Variables (6.5)***

### **Essential Question:**

- How can you represent inequalities graphically?

**Goal:** I can graph a linear inequality on the coordinate plane.

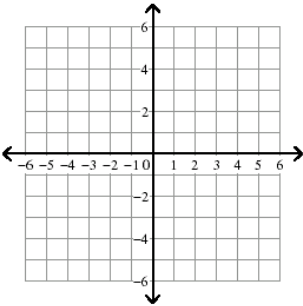
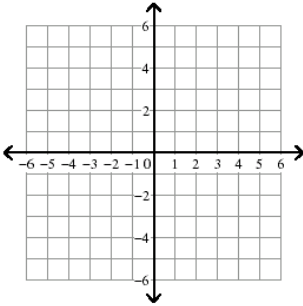
### **Steps:**

- 1) Put into slope-intercept form
- 2) Plot the BOUNDARY line ( $y = mx + b$ )
  - ❖ Dotted Line  $\rightarrow$   $>$  or  $<$
  - ❖ Solid Line  $\rightarrow$   $\geq$  or  $\leq$
- 3) Shade the Solution Set
  - ❖ Test Point: use  $(0, 0)$ 
    - Shade the appropriate region, where the inequality is true

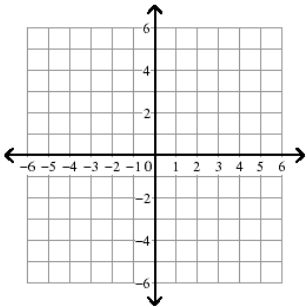
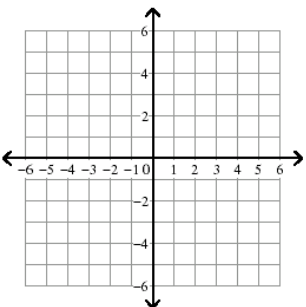
### **Section 1: Checking Solutions of Inequalities.**

<p><b>1)</b> Check whether the ordered pairs are solutions of: <math>x - 4y &lt; 1</math></p> <p style="margin-left: 40px;">a.) <math>(5, 1)</math>                      b.) <math>(0, 0)</math></p> <p><b>Answer:</b>    a.)                      b.)</p>	<p><b>YT 1)</b> Check whether the ordered pairs are solutions of: <math>4x + 5y \leq 12</math></p> <p style="margin-left: 40px;">a.) <math>(-3, 5)</math>                      b.) <math>(6, -8)</math></p> <p><b>Answer:</b>    a.)                      b.)</p>
--	---

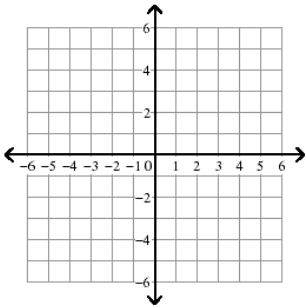
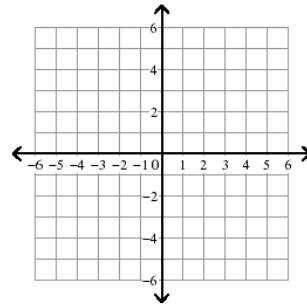
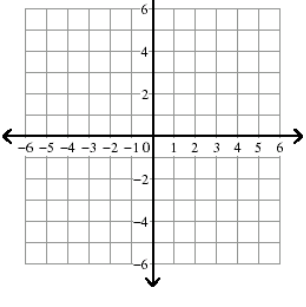
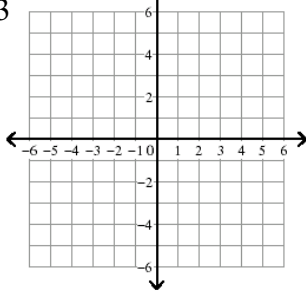
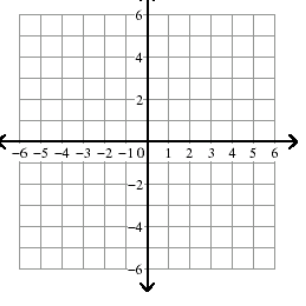
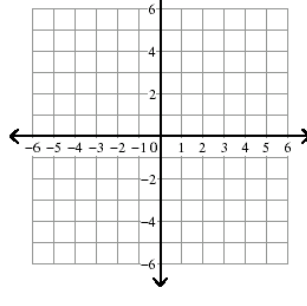
### **Section 2: HOY... Graphing Linear Inequalities that are Horizontal.**

<p><b>2)</b> Graph: <math>y &gt; -3</math></p> <div style="text-align: center;">  </div>	<p><b>YT 2)</b> Graph: <math>y \leq 1</math></p> <div style="text-align: center;">  </div>
---	---

**Section 3: VUX... Graphing Linear Inequalities that are Vertical.**

<p><b>3) Graph: <math>x \geq -5</math></b></p> 	<p><b>YT 3) Graph: <math>x &lt; 2</math></b></p> 
--	--

**Section 4: Graphing Linear Inequalities in Two Variables.**

<p><b>4) Graph: <math>y &lt; x - 8</math></b></p> <p><math>m =</math>            <math>b =</math></p> <p>dotted/solid</p> <p>Test point:</p> <p>T or F:</p> 	<p><b>YT 4) Graph: <math>y \leq -x + 9</math></b></p> <p><math>m =</math>            <math>b =</math></p> <p>dotted/solid</p> <p>Test point:</p> <p>T or F:</p> 
<p><b>5) Graph: <math>g(x) \geq \frac{1}{2}x</math></b></p> <p><math>m =</math>            <math>b =</math></p> <p>dotted/solid</p> <p>Test point:</p> <p>T or F:</p> 	<p><b>YT 5) Graph: <math>h(x) &gt; \frac{2}{3}x</math></b></p> <p><math>m =</math>            <math>b =</math></p> <p>dotted/solid</p> <p>Test point:</p> <p>T or F:</p> 
<p><b>6) Graph: <math>\frac{1}{2}x - 2y \leq 2</math></b></p> <p><math>m =</math>            <math>b =</math></p> <p>dotted/solid</p> <p>Test point:</p> <p>T or F:</p> 	<p><b>YT 6) Graph: <math>-y + x &gt; -2</math></b></p> <p><math>m =</math>            <math>b =</math></p> <p>dotted/solid</p> <p>Test point:</p> <p>T or F:</p> 

**Ticket Out / Lesson Summary:**

Complete the writing prompt... "To graph the inequality  $y > 2x - 3$ ..."