Algebra I: 7.1 Guided Notes **Name** _____ **Period** _____
Graphing Inequalities

Learning Goals:
Determine which type of line on a graph represents a given inequality.
Graph an inequality in two variables.
Interpret the solutions of inequalities algebraically and contextually.

Recall

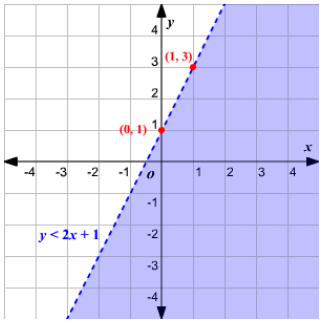
A linear inequality describes _____

_____.

The solutions of an inequality are _____

_____.

The ordered pairs are located in the _____ area of the graph and on the _____.



Inequality Symbol	Boundary Line	Shaded Area
≤		
≥		
<		
>		

Determine the Boundary Line and Shaded Area for a Given Inequality

Steps:

- Write the equation in slope-intercept form.
- If the inequality is ≤ or ≥, the line is solid. If the inequality is < or >, the line is dashed.
- If the inequality is > or ≥, shade above. If the inequality is < or ≤, shade below.

Does each linear inequality have a dashed or solid line and do you shade above or below the line?

1. $y \geq 3x - 2$

2. $3y - 5x < -12$

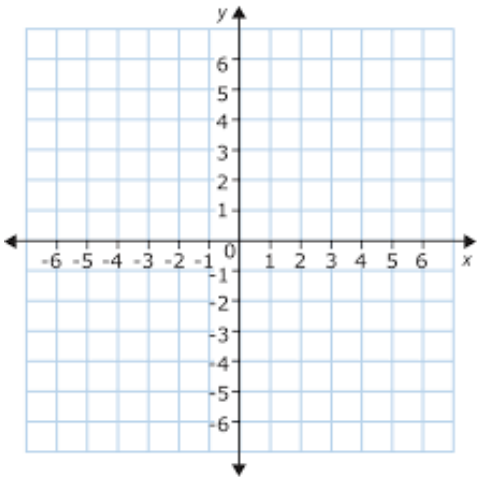
Graph a Linear Inequality in Two Variables

Steps:

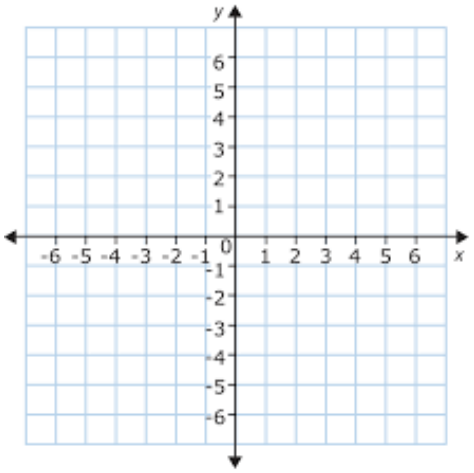
- Write the inequality in slope-intercept form. *Remember to reverse the inequality sign if you multiply or divide by a negative number.*
- Graph the equation, i.e. $y = 2x + 1$ and $y = 3x - 5$, using a solid or dashed boundary line.
- Shade above or below the line.
- *If you are not sure what side to shade, choose a **test point** and see if it is a solution for the inequality.*

Graph each linear inequality.

3. $y - 1 \le 2x$



4. $-y < -3x + 5$



Determine if a Given Point is a Solution to a Linear Inequality

Steps:

- Replace x and y with their respective values.
- Simplify.
- If the inequality is TRUE, then the ordered pair is a SOLUTION.
- If the inequality is FALSE, then the ordered pair is NOT a solution.

Determine if the ordered pair is a solution for the given linear inequality.

5. $y \le -2x + 1$; Point (2, 2)

6. $y \ge 3x - 2$; Point (0, 0)