**ALGEBRA 1 – MA1100**  
**GRAPH LINEAR INEQUALITIES**

*Learning Target:* I will be able to:  
- Graph a linear inequality  
- Identify points in/not in the solution set

**A. ANTICIPATORY SET**

We have learned three kinds of lines: slanted, horizontal, & vertical.

1. **Slanted** lines have both \( y \) and \( x \) in the equation with the form:  
   \[ y = mx + b \]
   
   Example: The equation \( y = 3x - 1 \) is a **slanted** line with \( y \)-intercept \((0, -1)\) and slope \( \frac{3}{1} \).

2. **Vertical** lines only have \( x \) in the equation, and follow the rule:
   \[ x = a \text{ number} \]
   
   Example: The equation \( x = -3 \) is a **vertical** line with slope **undefined**.

3. **Horizontal** lines only have \( y \) in the equation, and follow the rule:
   \[ y = a \text{ number} \]
   
   Example: The equation \( y = -1 \) is a **horizontal** line with slope **0**.
B. GRAPH HORIZONTAL & VERTICAL INEQUALITIES

1. Graph \( y \geq -3 \)
   a) Point A is in the solution set because on solid line
   b) Point B is in the solution set because in shaded area
   c) Point C is not in the solution set because not in shaded area

2. Graph \( y < 2 \)
   a) Point A is not in the solution set because not in shaded area
   b) Point B is not in the solution set because on broken line
   c) Point C is in the solution set because in shaded area

3. Graph \( x \leq -2 \)
   a) Point A is in the solution set because in shaded area
   b) Point B is in the solution set because on solid line
   c) Point C is not in the solution set because not in shaded area
1. Graph \( x \leq -3 \)
   a) Point A ________ in the solution set because ________
   
   b) Point B ________ in the solution set because ________
   
   c) Point C ________ in the solution set because ________

2. Graph \( y < -2 \)
   a) Point A ________ in the solution set because ________
   
   b) Point B ________ in the solution set because ________
   
   c) Point C ________ in the solution set because ________

3. Graph \( x \geq 2 \)
   a) Point A ________ in the solution set because ________
   
   b) Point B ________ in the solution set because ________
   
   c) Point C ________ in the solution set because ________
4. Graph \( y \geq -2x + 4 \)
   a) Point A _______ in the solution set because ____________________________
   b) Point B _______ in the solution set because ____________________________
   c) Point C _______ in the solution set because ____________________________

5. Graph \( y \geq -2x \)
   a) Point A _______ in the solution set because ____________________________
   b) Point B _______ in the solution set because ____________________________
   c) Point C _______ in the solution set because ____________________________

6. Graph \( y \leq 3 \)
   a) Point A _______ in the solution set because ____________________________
   b) Point B _______ in the solution set because ____________________________
   c) Point C _______ in the solution set because ____________________________