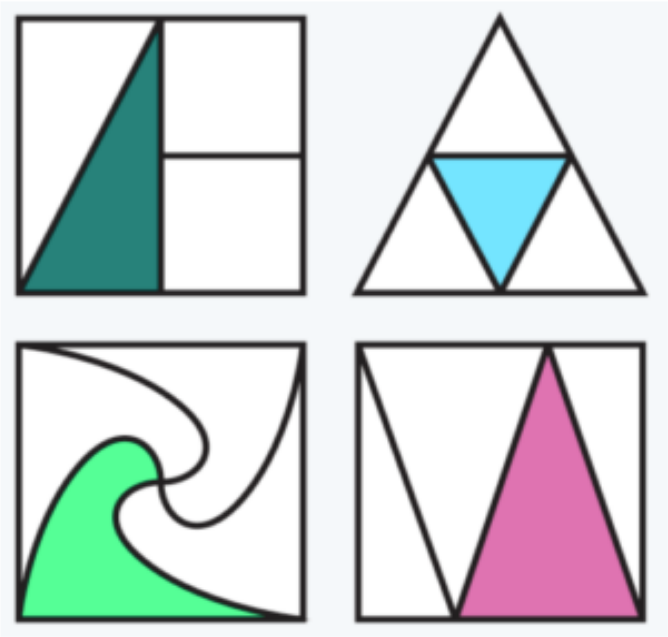
Warmup 10/ (The product of the 2nd & 4th prime numbers)

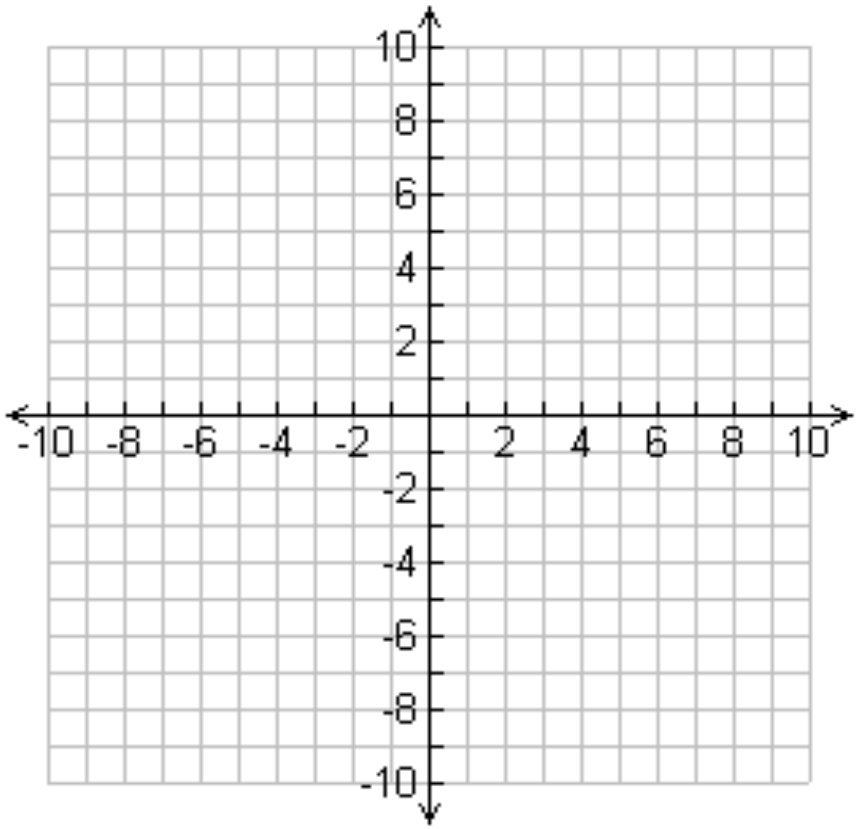
Created by Mr. Lischwe



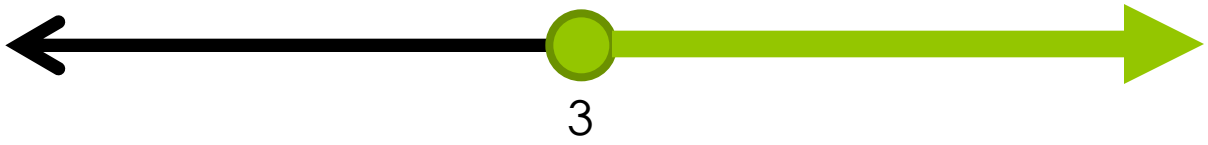
Which one doesn't belong? Explain why. Repeat for all four shapes.

Go over homework

What does it mean when we graph?



- So far, we have solved & graphed inequalities with one variable, like the one in the warmup…



- **DISCUSS:**
- 1. What does this graph represent?
- 2. What do you think the graph of a two variable inequality would look like???

Simplifying & Interpreting Expressions	p.1
Solving Equations	p.2
Fractions & Story Problems	p.3
Equations with No Solution or Infinite Solutions	p.4
Inequalities	p.5
Compound Inequalities	p.6
Solving for a Variable	p.7
What is a Function?	p. 8
Continuous or Discrete	p. 9
Domain & Range	p. 10
Slope	**p. 11**
Slope WITHOUT a graph	**p. 12**
Slope-Intercept Form	**p. 13**
Standard Form	**p. 14**
Point-Slope Form	**p. 15**
Solving Linear Inequalities	**p. 16**

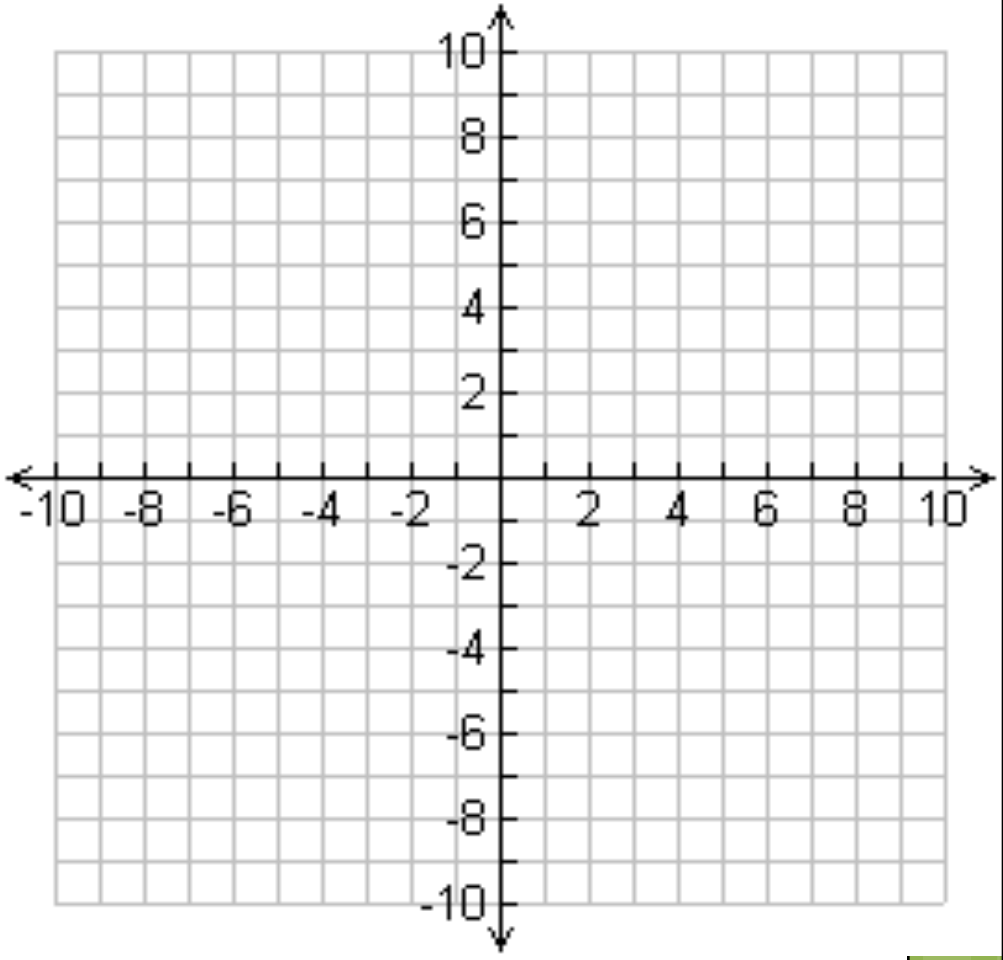
An example of a two-variable inequality…

- Come up with **three** solutions **(x, y)** to the following inequality:

  $y < x + 5$

- I will mark all of your solutions on the big graph…

- What do you notice about the graph? Any connections you can make???



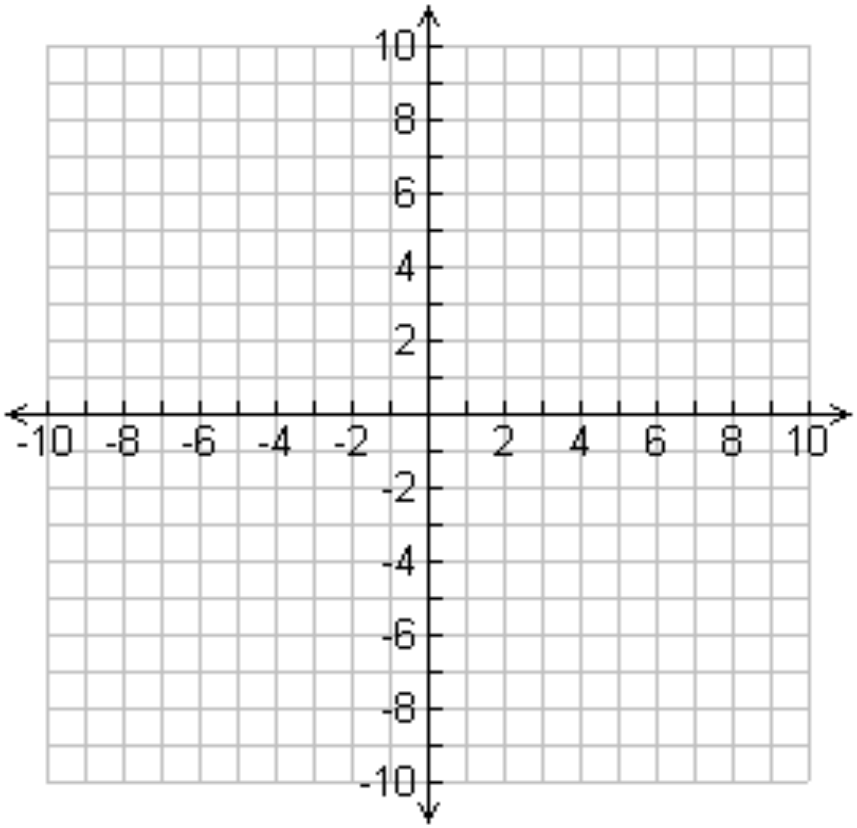
Another example of a two-variable inequality…

- Come up with **three** solutions **(x, y)** to the following inequality:

  $y \geq 4x + 3$

- I will mark all of your solutions on the big graph…

- What do you notice about the graph? Any connections you can make???



Graphing Linear Inequalities

- Solve for y (get y by itself on the left side)
- Graph the "boundary line", dotted or solid
- Shade the correct side of the line

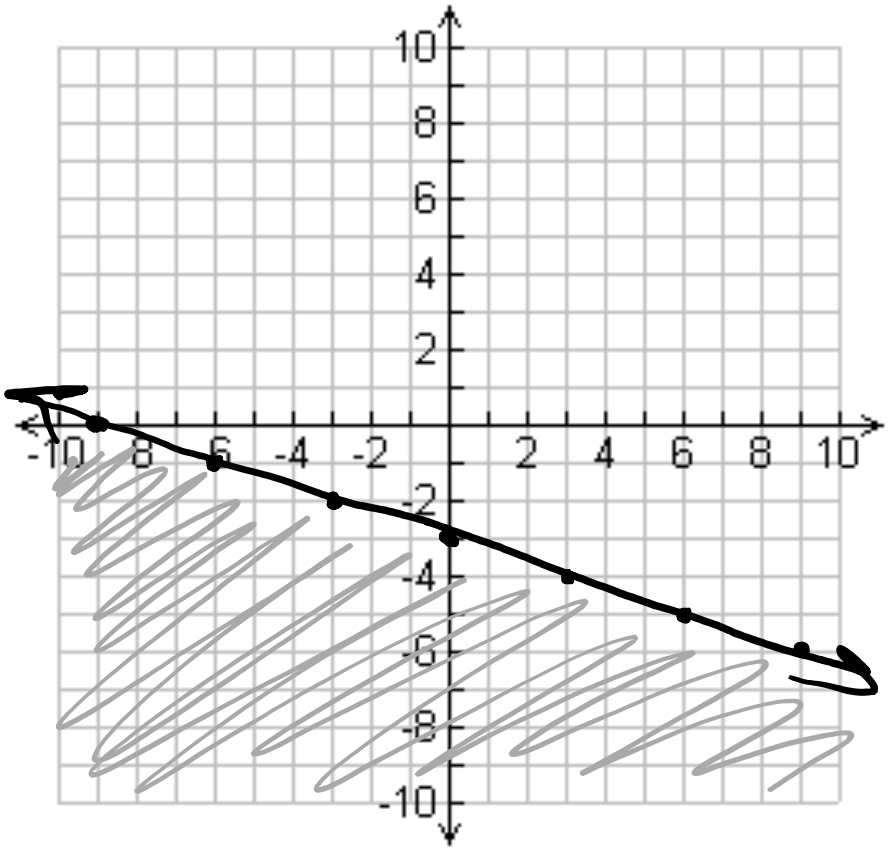
Tips

- **≤ or ≥: Solid line**
- **< or >: Dotted line**
- **y < or y ≤: Shade below**
- **y > or y ≥: Shade above**

- **HELPFUL HINT:**
  - Check your answer by substituting an easy point like (0, 0)

- Graph the inequality:

$$y \leq -\frac{1}{3}x - 3$$



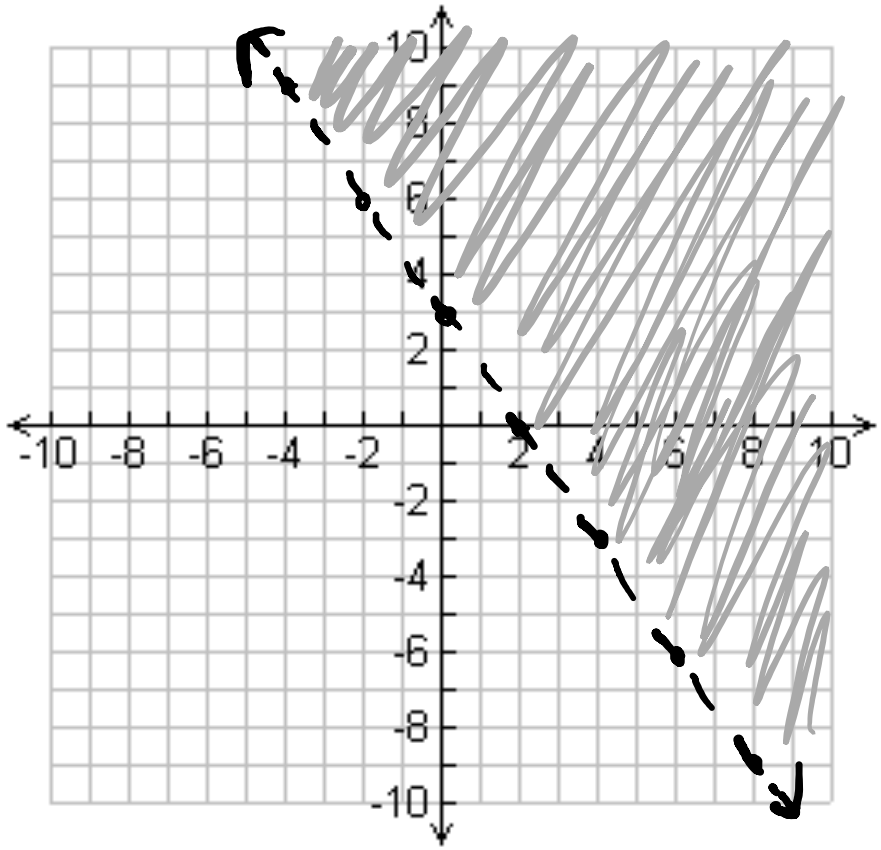
- Graph the inequality:

$$3x + 2y > 6$$

$$-3x \qquad -3x$$

$$\frac{2y}{2} > \frac{6}{2} - \frac{3x}{2}$$

$$y > 3 - \frac{3}{2}x$$



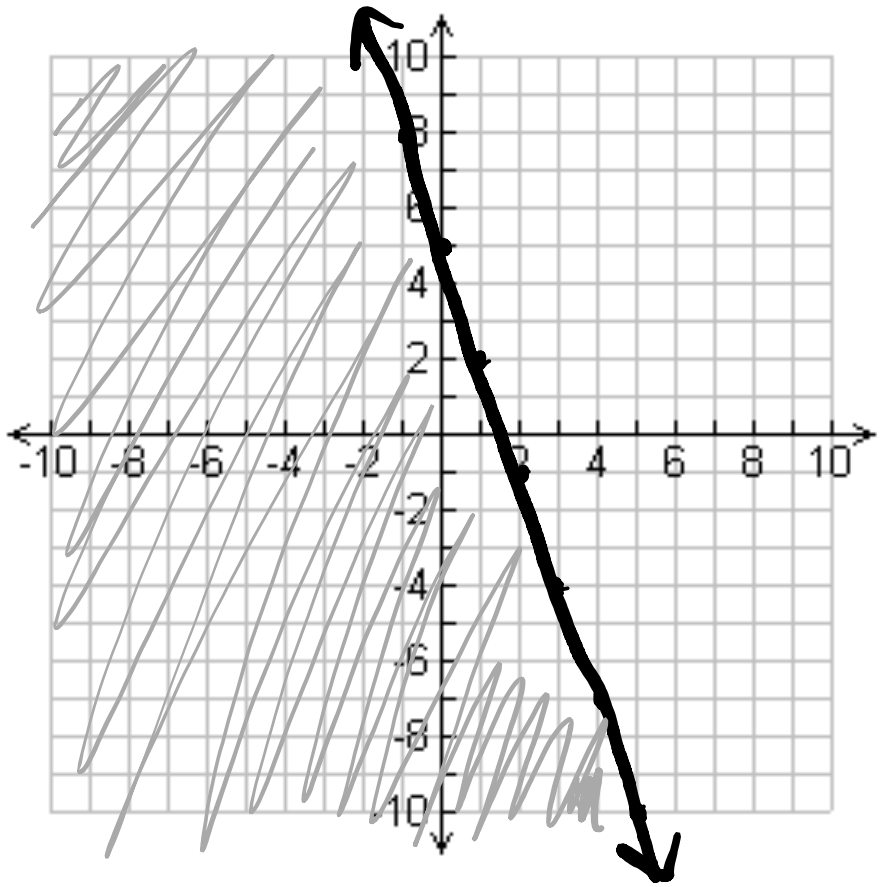
- Graph the inequality:

$$10 - 2y \geq 6x$$

$-10 \qquad -10$

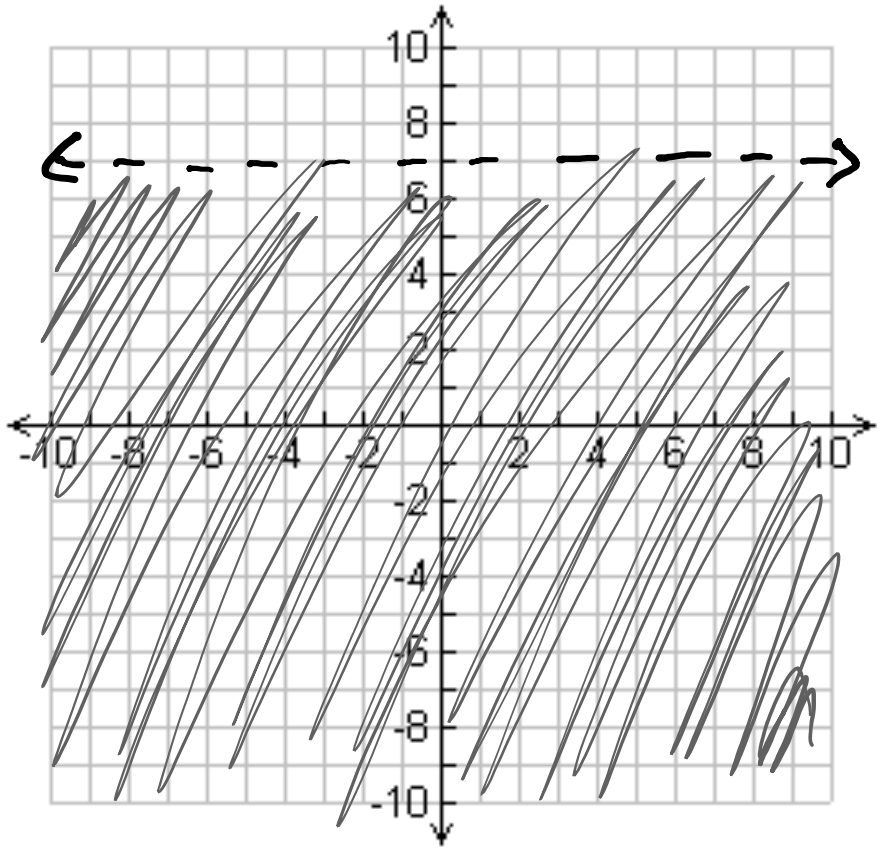
$$\frac{-2y}{-2} \geq \frac{6x}{-2} - \frac{10}{-2}$$

$$y \leq -3x + 5$$



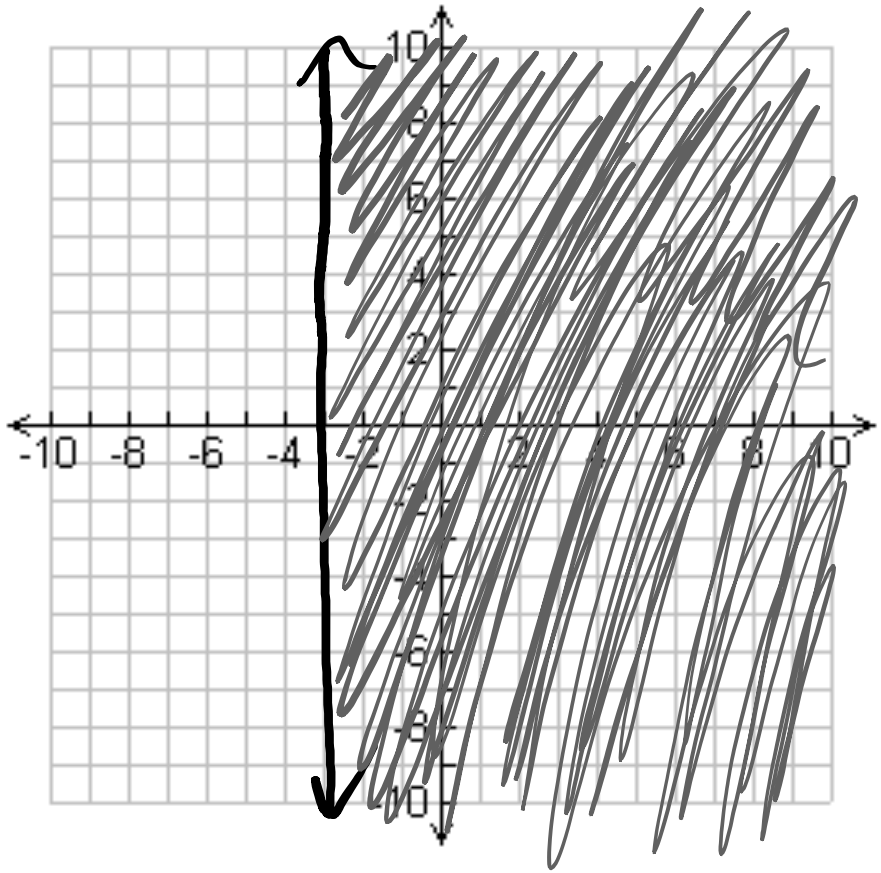
- **Graph the inequality:**

$$y < 7$$



- **Graph the inequality:**

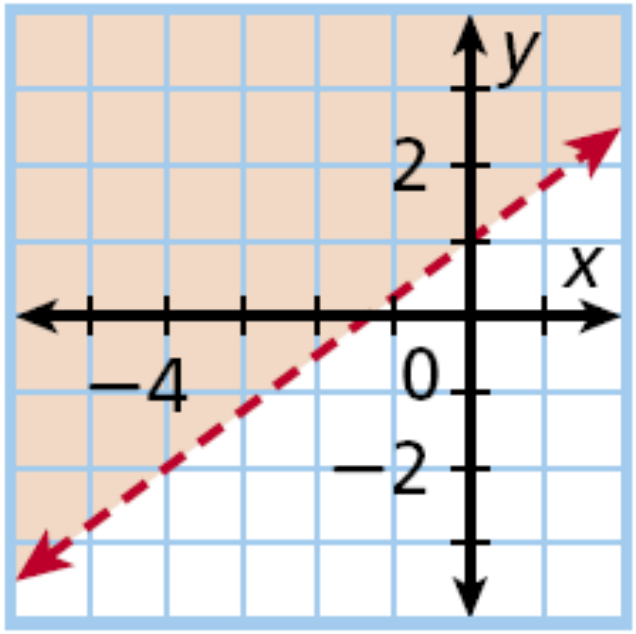
$$x \geq -3$$



Horizontal & Vertical Lines

- **y = number: horizontal**
- **x = number: vertical**

Write an inequality to represent the graph.



y-intercept: 1; slope: $\frac{3}{4}$

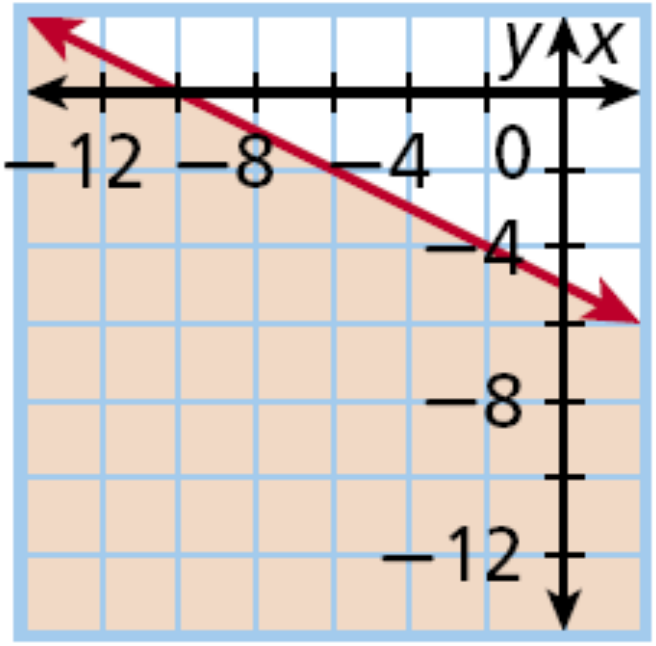
Write an equation in slope-intercept form.

$$y = mx + b \rightarrow y = \frac{3}{4}x + 1$$

The graph is shaded *above* a *dashed* boundary line.

Replace = with > to write the inequality $y > \frac{3}{4}x + 1$.

Write an inequality to represent the graph.



y-intercept: –5 slope: $-\frac{1}{2}$

Write an equation in slope-intercept form.

$$y = mx + b \rightarrow y = -\frac{1}{2}x - 5$$

The graph is shaded *below* a *solid* boundary line.

Replace = with ≤ to write the inequality $y \leq -\frac{1}{2}x - 5$.

Homework

Back of Worksheet