

6.2: Writing Linear Equations

“I WILL

...solve inequalities with operations and graphing .”

I. What do these signs mean?

A. $>$: _____ \geq : _____

B. $<$: _____ \leq : _____

II. Keywords

A. _____, ‘ $>$ ’ sign

1. Greater Than Bigger Than

B. _____, ‘ $<$ ’ sign

1. Less Than Smaller Than

C. _____, ‘ \geq ’ sign

1. Greater Than or Equal to Minimum of

2. At least No less than

D. _____ ‘ \leq ’ sign

1. Less Than or Equal to Maximum of Up to

2. No More Than At Most

III. Definitions

A. Inequality is an equation where the variable does not equal to each other

B. $>$, $<$, or \neq requires the dot being _____ circle

C. \geq , \leq , or $=$ required the dot being _____ circle

IV. Inequalities

A. X typically comes first or is in the middle of the compound

B. $>$ represents _____ than

C. $<$ represents _____ than

D. \leq , \geq represents greater than or equal to, less than or equal to

V. Interval Notation

A. Smallest number, bigger number

B. _____ [,] represents greater than or equal to, less than or equal to

C. _____ (,) represents greater than or less than

D. On the ends, extremes use infinity: ∞ ; always deals with parenthesis



VI. Steps










- A. Put the variables onto one side
- B. Divide the number(s) in front of the variable
- C. Graph on a number line based on the inequality given
- D. _____ of the expression IF the variable comes first
- E. REMEMBER: When we **NEGATIVE DIVIDE**, we **FLIP THE SIGN**

VII. Steps in Graphing Inequalities

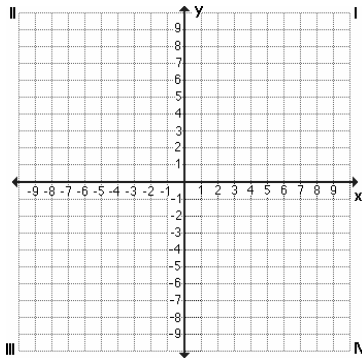
- C. Draw the graph either applying slope–intercept or quick graph form
 - 1. When using “cover–up,” if there is a negative coefficient in the y, flip the direction of the graph.
- D. Determine what the sign is and graph the line
 - 1. _____ Line: Greater, Less, or not–equal to
 - 2. _____ Line: Greater than OR equal to, Less than OR equal to, Equal to
- E. Shade above or below the line by looking at inequality.
- F. Shade Up: _____ Shade Down: _____

VIII. Model Problems

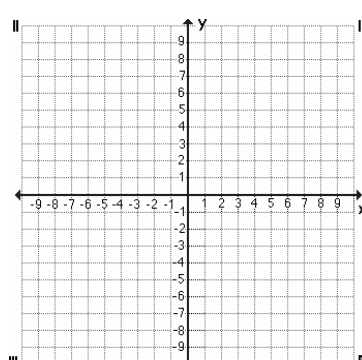
<p>Ex 1: Your sister gave you her credit card and said that you could go shopping for a birthday present for your significant other. She said that you could spend <u>no more than</u> \$125. Write the expression.</p>		<p>Your Turn: Your sister gave you her credit card and said that you could go shopping for a birthday present for your significant other. She said that you could spend <u>at least</u> \$125. Write the expression.</p>	
<p>Ex 2: Is (2, 4) a solution to the inequality $y < 2x + 1$?</p>	<p>Ex 3: Is (2, -4) a solution to the inequality $y \geq 2x + 1$?</p>	<p>Ex 4: Is (2, 5) a solution to the inequality $y \leq 2x + 1$?</p>	<p>Your Turn: Is (-3, -4) a solution to the inequality $2y > 3x + 1$?</p>
<p>Ex 5: Solve $x < 6$, graph and label as an inequality and interval notation.</p> <p style="text-align: center;"></p> <p>Inequality: _____</p> <p>Interval Notation: _____</p>		<p>Ex 6: Solve $2x - 8 \geq 6$, graph and label as an inequality and interval notation.</p> <p style="text-align: center;"></p> <p>Inequality: _____</p> <p>Interval Notation: _____</p>	

<p>Ex 7: Solve $x + 3 \geq -1\frac{1}{4}$, graph and label as an inequality and interval notation.</p> <p style="text-align: center;"></p> <p>Inequality: _____ Interval Notation: _____</p>		<p>Your Turn: Solve $x + 4 > -5$, graph and label as an inequality and interval notation.</p> <p style="text-align: center;"></p> <p>Inequality: _____ Interval Notation: _____</p>	
<p>Ex 8: Solve $-1 > x - 1/2$, graph and label as an inequality and interval notation.</p> <p style="text-align: center;"></p> <p>Inequality: _____ Interval Notation: _____</p>	<p>Ex 9: Solve $5x + 3 > 4x + 5$, graph and label as an inequality and interval notation.</p> <p style="text-align: center;"></p> <p>Inequality: _____ Interval Notation: _____</p>	<p>Your Turn: Solve $5x - 6 < 4x - 4$, graph and label as an inequality and interval notation.</p> <p style="text-align: center;"></p> <p>Inequality: _____ Interval Notation: _____</p>	
<p>Ex 10: Solve $-3x > 24$, graph and label as an inequality and interval notation.</p> <p style="text-align: center;"></p> <p>Inequality: _____ Interval Notation: _____</p>		<p>Ex 11: Solve $-3/4x \geq 18$, graph and label as an inequality and interval notation.</p> <p style="text-align: center;"></p> <p>Inequality: _____ Interval Notation: _____</p>	
<p>Ex 12: Solve $x + 8 \geq 4x + 17$, graph and label as an inequality</p> <p style="text-align: center;"></p> <p>Inequality: _____</p>		<p>Your Turn: Solve $-\frac{x}{3} + 2 \geq -10$, write the answer as an inequality, and graph on a number line</p> <p style="text-align: center;"></p> <p>Inequality: _____</p>	

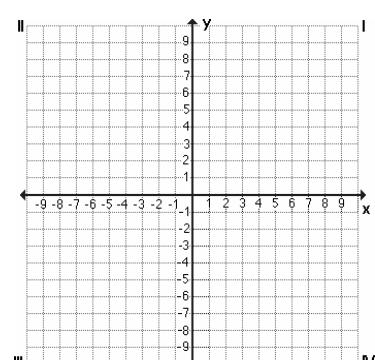
Ex 13: Graph $x \leq 4$



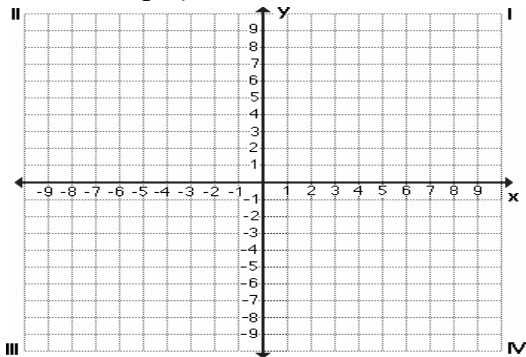
Ex 14: Graph $x > 1$



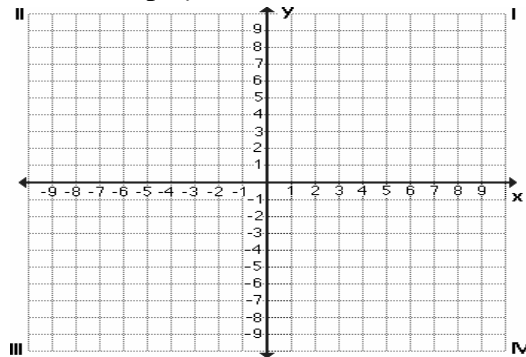
Your Turn: Graph $x < 0$



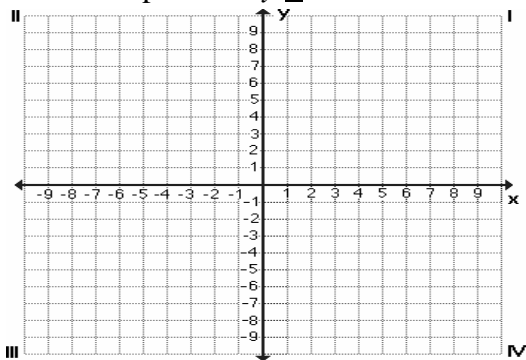
Ex 15: Graph $y \leq -2$



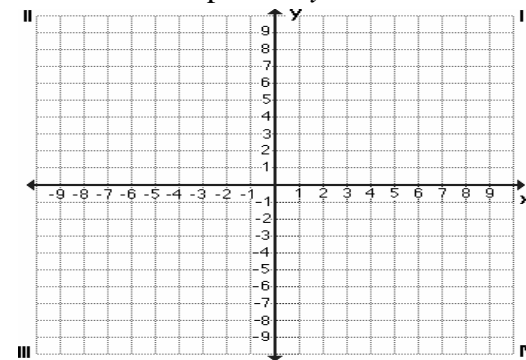
Ex 16: Graph $y < x + 1$



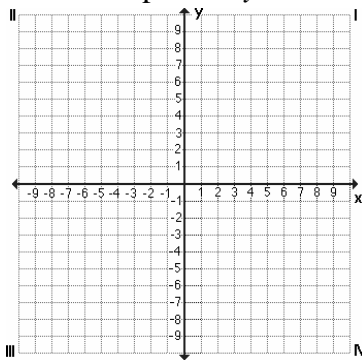
Ex 17: Graph $2x + 2y \leq -2$



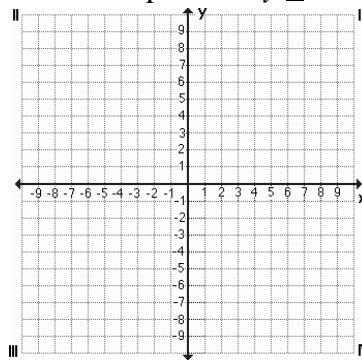
Your Turn: Graph $3x + y > -2$



Ex 18: Graph $2x - y < 2$



Ex 19: Graph $2x - 4y \leq 8$



Your Turn: Graph $3x - 2y < 8$

