

9/8/14

Linear Inequalities in Two Variables

Obj: To graph linear inequalities in two variables

A linear inequality can be written

as

$$Ax + By < C \quad \text{OR} \quad Ax + By > C$$

$$Ax + By \leq C \quad Ax + By \geq C$$

$<$ $>$ strict inequalities

\leq \geq non-strict inequalities

at least, at most

9/8/14

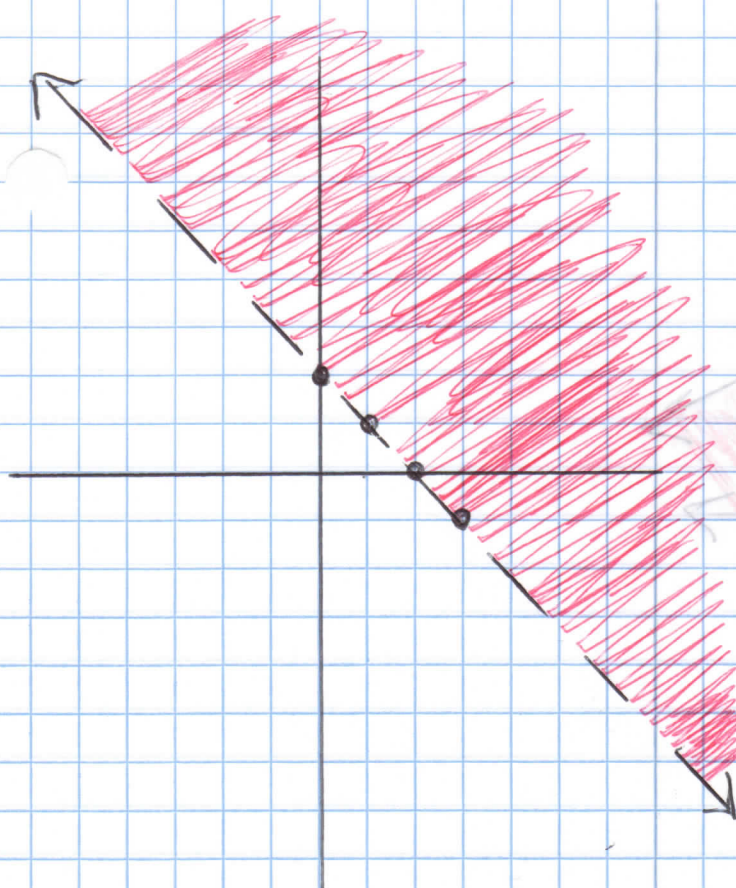
Graphing Linear Inequalities in Two-Variables

$<$ $>$ will be represented by dashed lines.

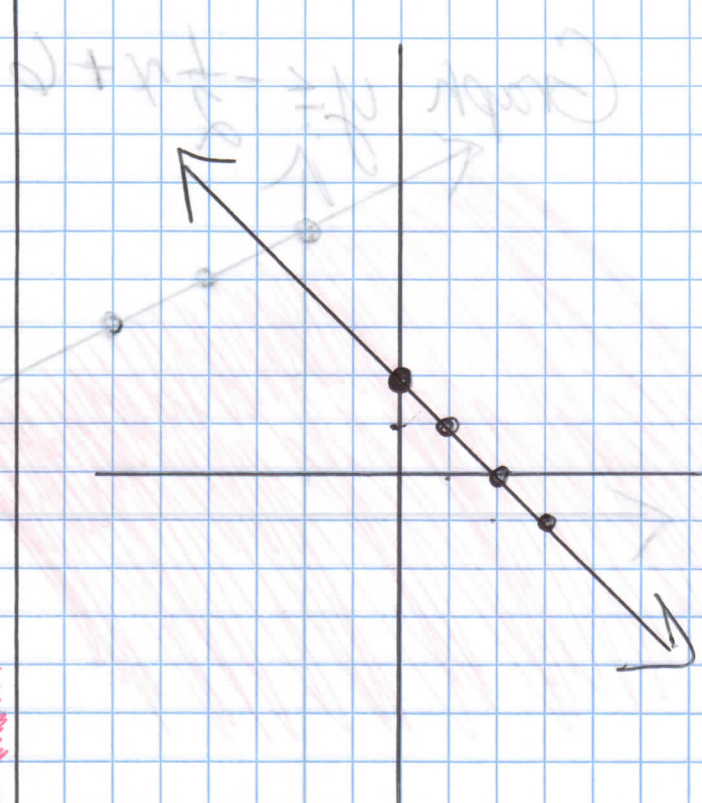
\leq \geq will be represented by solid lines.

$<$ \leq we will shade below the boundary line.

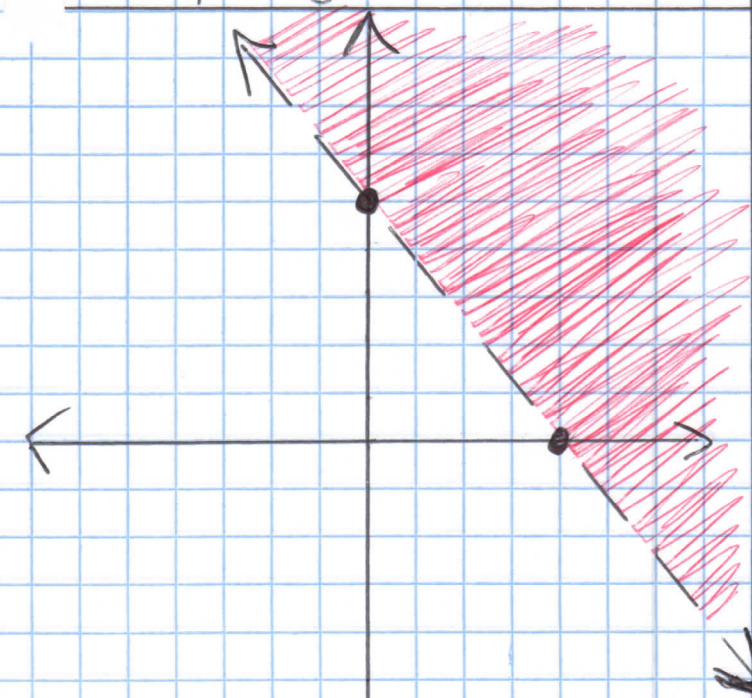
$>$ \geq we will shade above the boundary line.



Graph $y > -x + 2$



Graph $y = -x + 2$



Graph $5x + 4y > 20$

Let's solve for "y" ^{y-int}
 $5x + 4y > 20$
 $-5x$ $-5x$

$$\frac{4y}{4} > \frac{-5x + 20}{4}$$

$$y > -\frac{5}{4}x + 5$$

9/9/14
Bridge
Math

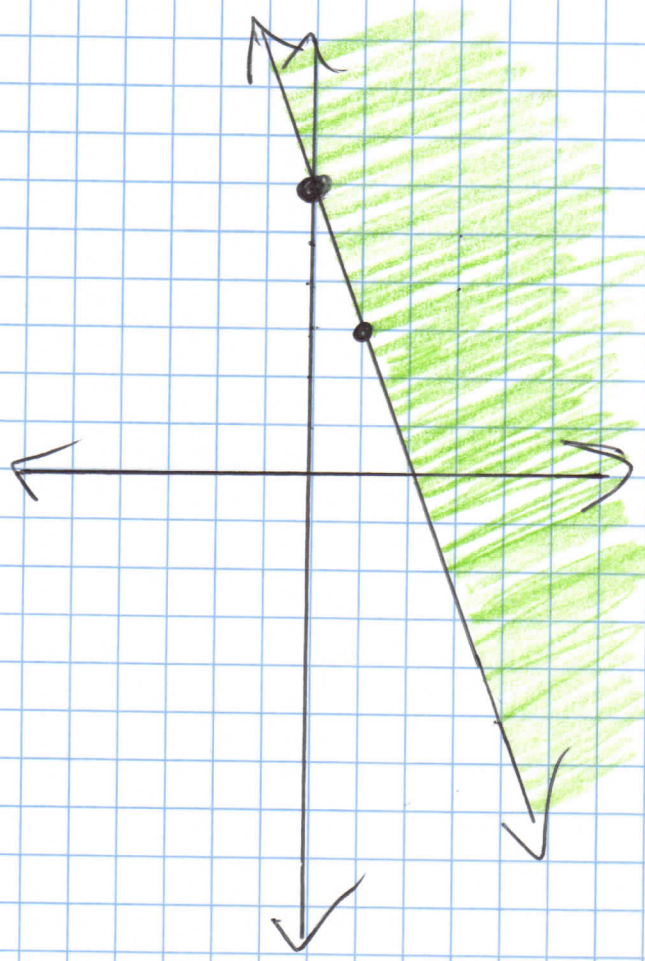
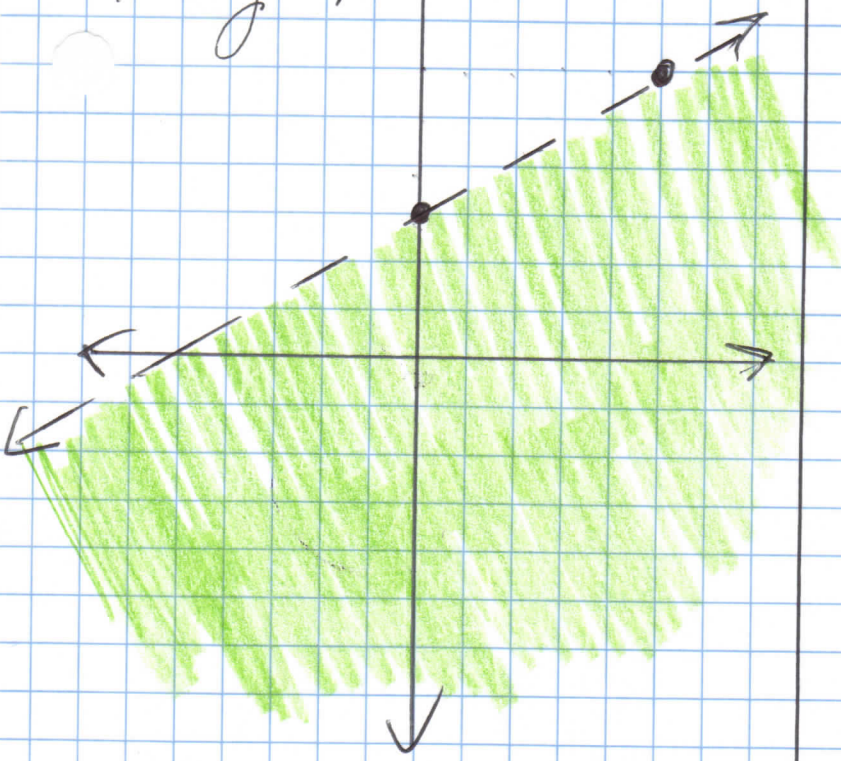
Graph $3x + y \geq 6$

$-3x$

$-3x$

$$y \geq -3x + 6$$

$$3x - 5y > -15$$



9/9/14
Bridge Math

$$\text{Graph } 3x - 5y > -15$$

$$\begin{array}{r} -3x \qquad \qquad \qquad -3x \\ \hline -5y > -3x - 15 \\ \hline -5 \quad -5 \quad -5 \end{array}$$

Note: Reverse the direction of the inequality symbol when dividing by a negative.

$$y < \frac{3}{5}x + 3$$

Test point (0, 0)	}	(-5, 2)
$3x - 5y > -15$		$3(-5) - 5(2) > -15$
$3(0) - 5(0) > -15$	}	$-15 - 10 > -15$
$0 > -15$ ✓		$-25 > -15$
		Not true