

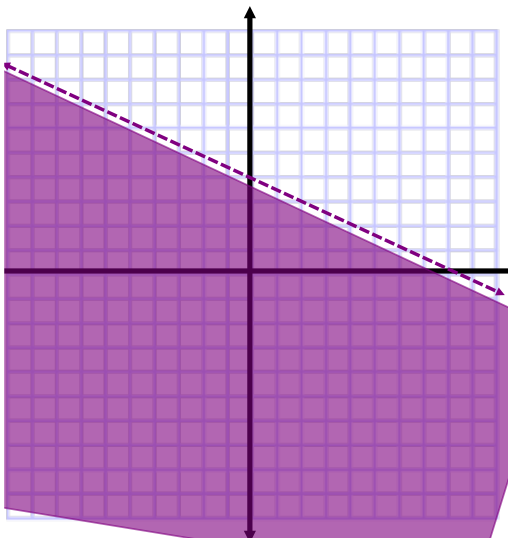
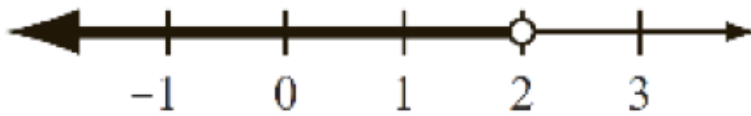
## Graphing Linear Inequalities

- 1) Do Now
- 2) Notes on Graphical Solutions to Inequalities in 2 variables
- 3) Revisit Do Now
- 4) Example of graphical solution to systems of inequalities in 2 variables
- 4) JIG Saw
  - Complete #1-8: 10 min
  - JigSaw: Discuss your problem (3 min)
  - Present your problem

***HW: p. 138 Oral Exercises #1, 13-16  
Written Exercises #5, 13, 21, 27,  
35\*\* (challenge)***

## Do Now

Write the relationship represented by each graph.



## Graphing Linear Inequalities

### Key Facts:

Shaded area = the solution (all points that make the equation true!)

Dotted line:  $<$  or  $>$  

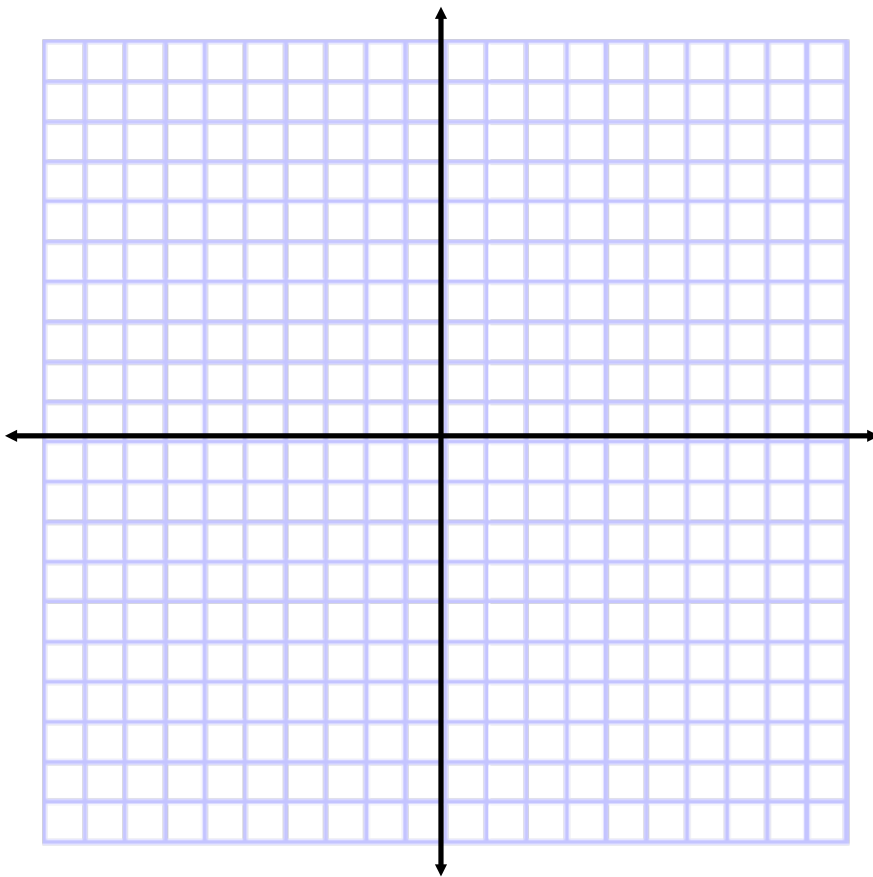
Solid line:  $\leq$  or  $\geq$  

### Steps:

- 1) Graph the line as if it were an equal sign.
  - Use a dotted or solid line (see above).
- 2) Test  $(0, 0)$  (or another point **NOT** on the line)
  - If it makes the inequality **true**, shade the region that **includes** the point.
  - If it makes the inequality **false**, shade the region that **excludes** the point.

Now, let's do an example that combines our knowledge of systems with inequalities

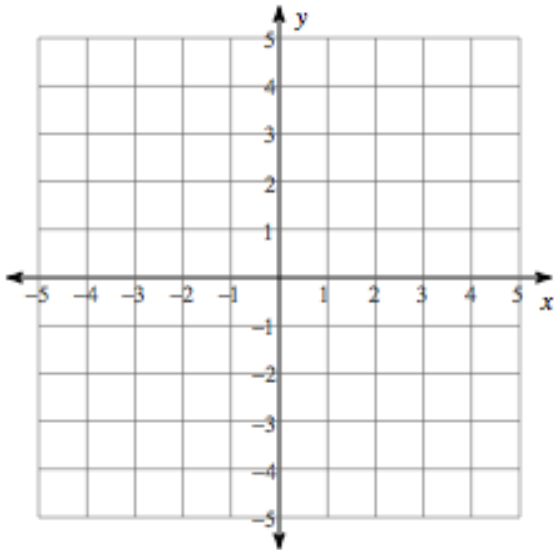
$$2x - 6y \geq -12 \quad y < -3x + 3$$



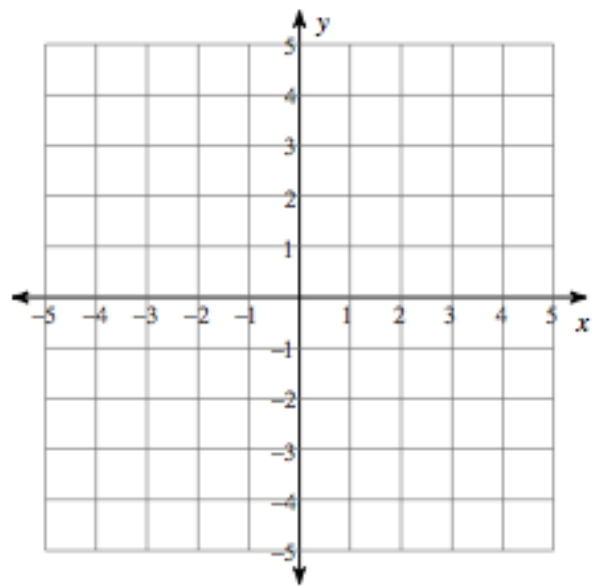
Our solution is where the shaded regions intersect!

# JIG Saw (with KUTA worksheet)

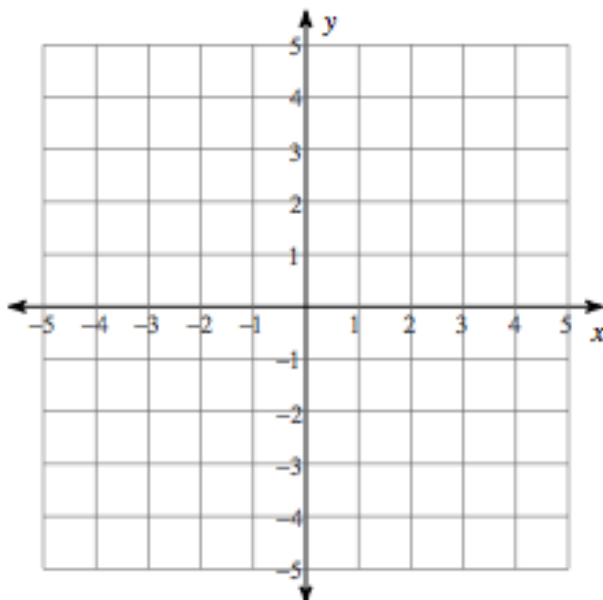
1)  $y \leq -x - 2$   
 $y \geq -5x + 2$



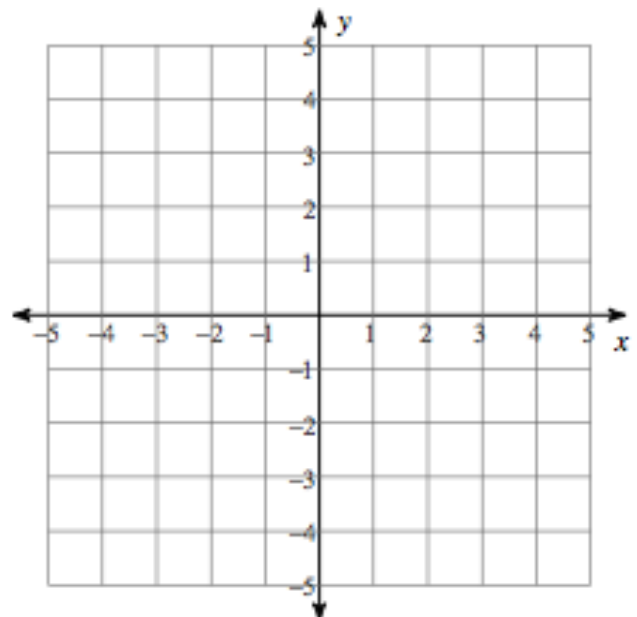
2)  $y > -x - 2$   
 $y < -5x + 2$



3)  $y \leq \frac{1}{2}x + 2$   
 $y < -2x - 3$

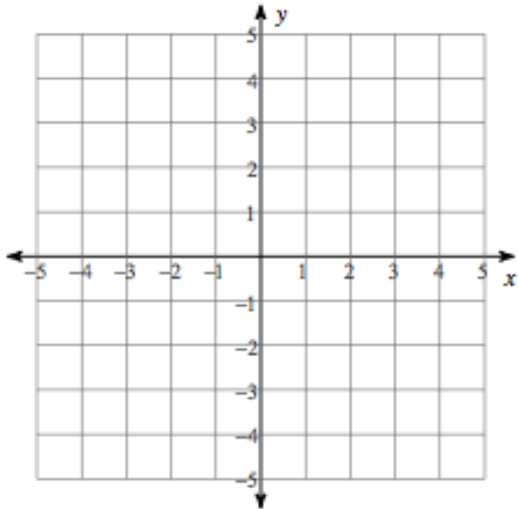


4)  $x \leq -3$   
 $y < \frac{5}{3}x + 2$



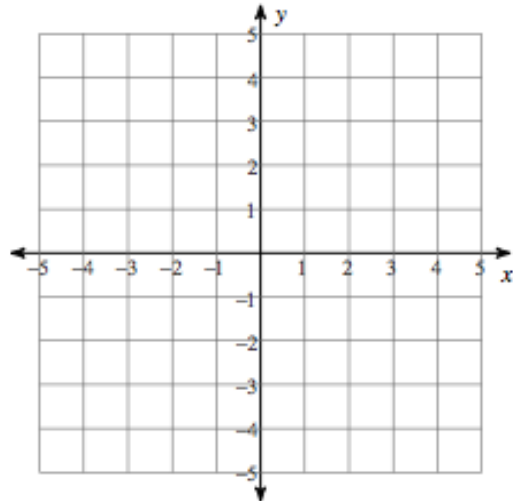
5)  $y \leq -\frac{5}{2}x - 2$

$y < -\frac{1}{2}x + 2$

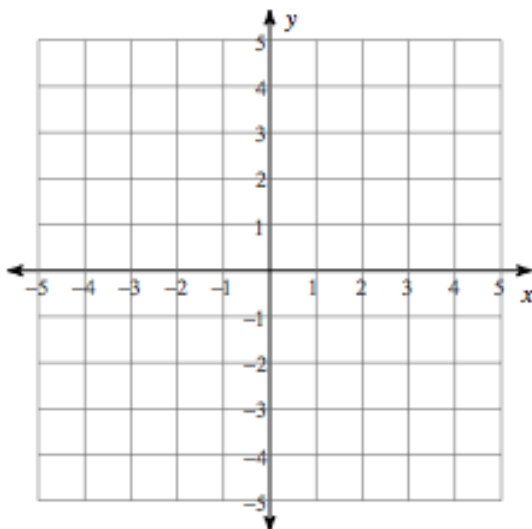


6)  $y \geq \frac{2}{3}x + 3$

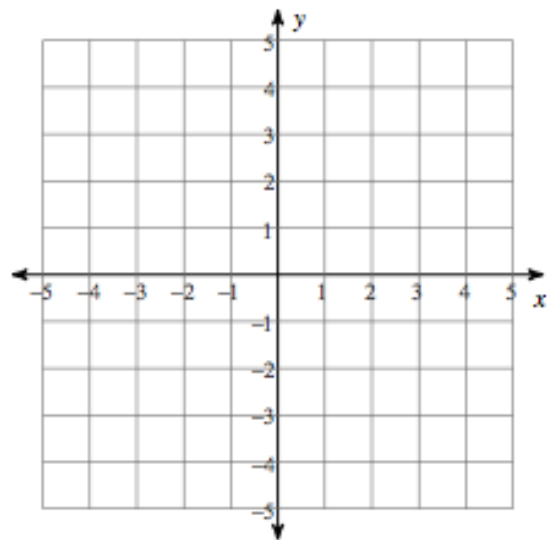
$y > -\frac{4}{3}x - 3$



7)  $4x + y < 2$   
 $y > -2$



8)  $3x + 2y \geq -2$   
 $x + 2y \leq 2$



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