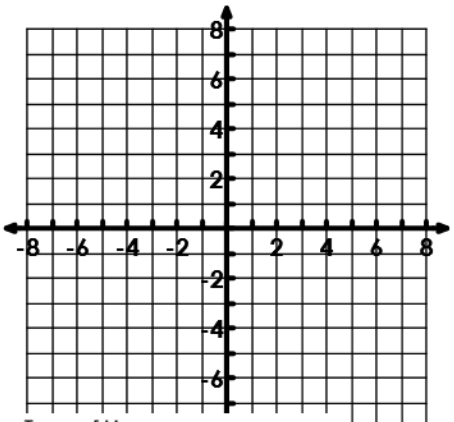
Practice Graphing Linear Inequalities

a. $y < 3x + 4$

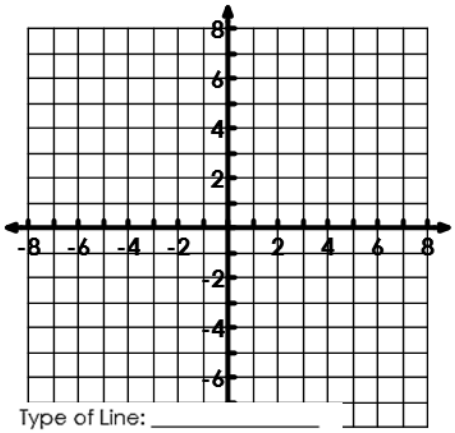


Type of Line: _____

Slope: _____ Y-int: _____

Shade: _____

b. $y \geq -\frac{2}{3}x + 1$



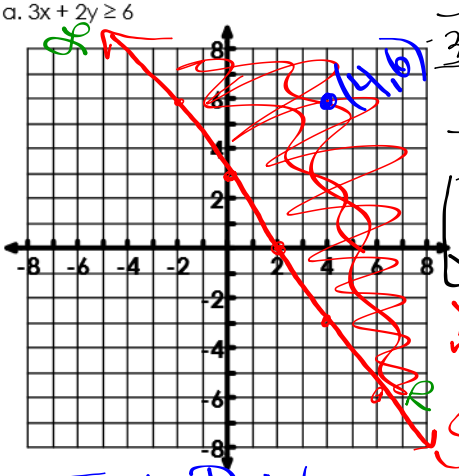
Type of Line: _____

Slope: _____ Y-int: _____

Shade: _____

Ex. Graph the inequality:

a. $3x + 2y \geq 6$



$3x + 2y \geq 6$

$-3x \quad -3x$

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

$y \geq -\frac{3}{2}x + 3$

y-int: (0, 3)

m: $-\frac{3}{2}$ ↓ →

Solid

Above

Test Point (4, 6)

$y \geq -\frac{3}{2}x + 3$

$6 \geq -\frac{3}{2}(4) + 3$

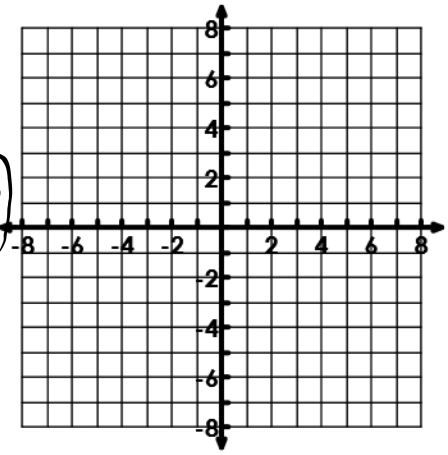
$6 \geq -6 + 3$

$6 \geq -3$

True

Ex. Graph the inequality:

b. $4x - 3y > 12$



Foundations of Algebra Unit 6: Systems of Equations & Inequalities Notes

Test Point: Test Point:

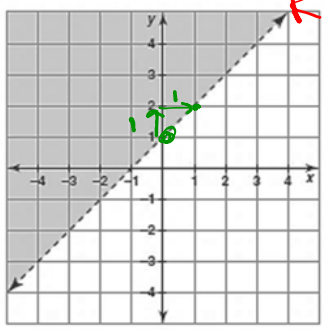
Naming Linear Inequalities

What information do you need to look at to name a linear inequality from a graph?

- y-intercept (b)
- Slope (m)
- Dashed or Solid
- Shade (above or below)

Practice: Name each linear inequality from the graph:

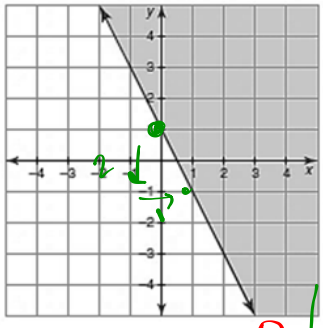
a.



y-int: (0,1)
Slope: 1
Dashed } >
Above }

$y > 1x + 1$

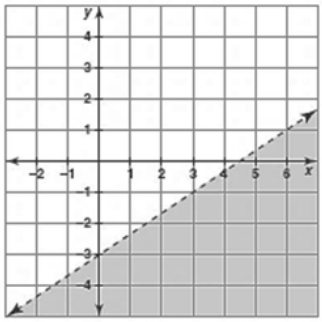
b.



y-int (0,1)
Slope: $\frac{\text{down } 2}{\text{right } 1}$ $\frac{-2}{1}$
Solid } ≥
Above }

$y \geq -2x + 1$

c.



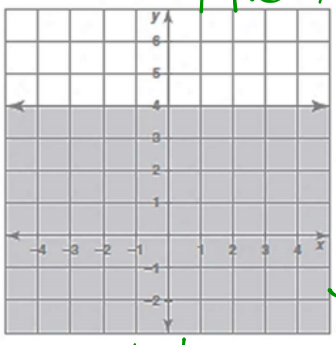
Type of Line: _____

Slope: _____ Y-int: _____

Shade: _____

d.

HOY: y = ____



y-int: (0,4)
slope: 0
Solid } ≤
Below }

$y \leq 4$

Type of Line: Solid

Slope: 0 Y-int: (0,4)

Shade: Below

Graphing Systems of Inequalities in Slope Intercept Form

Steps for Graphing Systems of Inequalities

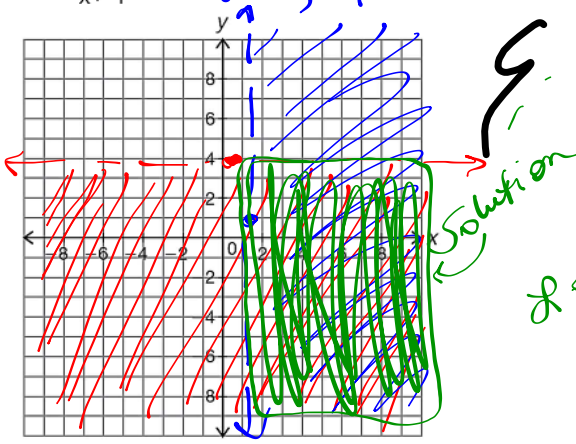
Step 1: Graph the boundary lines of each inequality. Use dashed lines if the inequality is < or >. Use a solid line if the inequality is ≤ or ≥.

Step 2: Shade the appropriate half plane for each inequality.

Step 3: Identify the solution of the system of inequalities as the intersection of the half planes from Step 2.

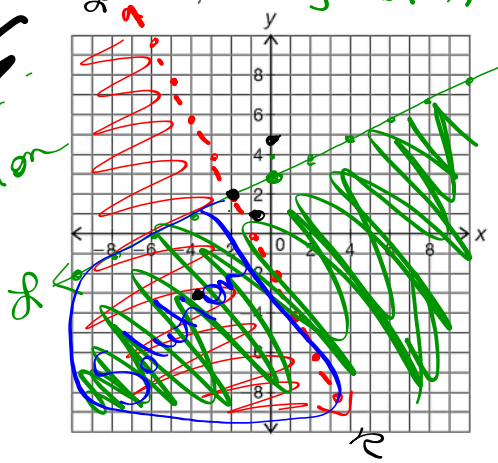
A. $y < 3$
$x > 1$

Dashed, Below
Dashed; Greater



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

y-int: (0,-3); m: $\frac{-2}{1}$; Dash; Below
y-int (0,2); m: $\frac{1}{2}$; Solid; Below



C. $y \geq 2/3x + 3$
$y > -4/3x - 3$

D. $2y > -8x + 16$ $4x + y < -2$