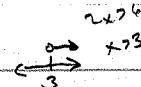


Solve & graph

1) $3+2x > 9$



2) $x \leq 12$



3) $-2-3x \geq 10$

$-3x \geq 12$

$x \leq -4$

Write an eqn for line with $m=5$ $b=3$

$y=5x+3$

2.8 Graphing Linear Inequalities w/ 2 variables

* Graphing w/ XY Plane

An ordered pair is a solution if it makes the inequality true.

Which point is solution for $3x+4y > 8$?

a) $(6, -3)$

b) $(0, 2)$

c) $(-2, -1)$

d) $(-3, 5)$

plug in for x & y

$3(6)+4(-3) > 8$

$18-12 > 8$

$6 > 8$ No

$3(0)+4(2) > 8$

$0+8 > 8$

$8 > 8$ No

$3(-2)+4(-1)$

$-6-4$

$-10 > 8$ No

$3(-3)+4(5) > 8$

$-9+20 > 8$

$11 > 8$ Yes

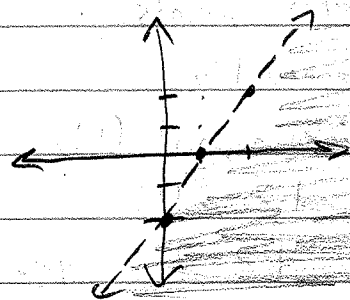
so $(-3, 5)$ is a solution

Graphing

1st - Best to get into slope intercept form or find x & y intercepts

$y < 2x - 2$

know $m=2$ & $b=-2$



2nd - Plot points

3rd - If $>$ or $<$, use dashed line. For \geq or \leq , use solid line (like open circle) (like closed circle)

4th - Pick a point above or below line & plug in the inequality. If works, all on that side work. If no, other side works

For $(0, 0)$

$0 < 2(0) - 2$

$0 < -2$

$(3, 0)$

$0 < 2(3) - 2 \rightarrow 0 < 4 \rightarrow$ Yes! Shade!

Not true, so shade below line

Different S.I Form

$$y < mx + b$$

$$y > mx + b$$

$$y \leq mx + b$$

$$y \geq mx + b$$

Standard Form

$$Ax + By < C$$

$$Ax + By > C$$

$$Ax + By \leq C$$

$$Ax + By \geq C$$

Graph

1) $y > -2x$

1st - S.I Form

$$m = -2 \quad b = 0$$

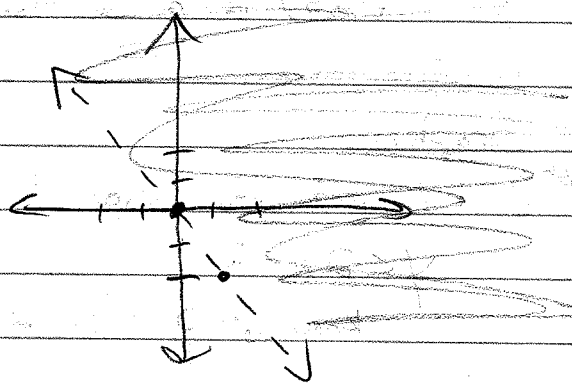
2nd - Graph points

3rd - Dashed line

4th - Pick a point (1,1)

$$1 > -2(1)$$

$1 > -2$ Yes. Shade that side



2) $5x - 2y \leq -4$

1st - S.F.

$$5x = -4 \quad x = -\frac{4}{5} \quad \left. \begin{array}{l} -2y = -4 \\ y = 2 \end{array} \right\} \text{Cross @ } -\frac{4}{5} \text{ on } x, 2 \text{ on } y$$

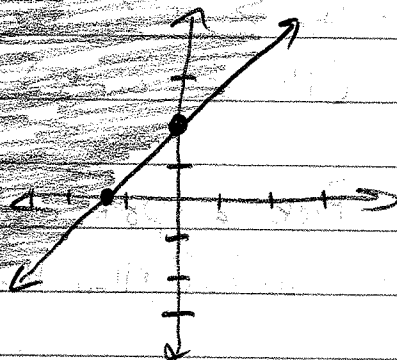
2nd - Plot

3rd - Solid line \leq equal to

4th - Test (0,0)

$$5(0) - 2(0) \leq -4$$

$0 \leq -4$ No, shade above



Homework

$$11) y \leq -2x - 1$$

$$12) y < 3x + 3$$

$$13) y < \frac{3}{4}x + 1$$

$$15) 2x + y < 6$$

$$16) x + 4y > -12$$

$$17) 3x - y \geq 1$$