

Warm-up

Solve & graph

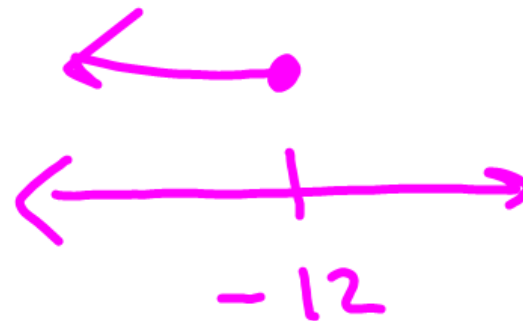
$$1) 3 + 2x > 9$$

$$-3 \quad -3$$

$$2x > 6$$



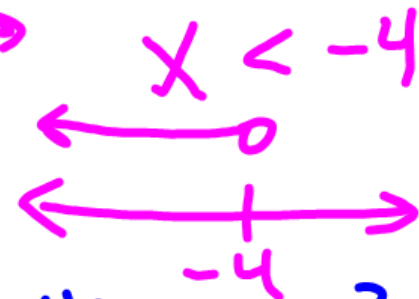
$$2) x \leq -12$$



$$3) -2 - 3x > 10$$

$$+2 \quad +2$$

$$\frac{-3x > 12}{-3} \quad \downarrow \quad \frac{12}{-3}$$



4) Write the equation for the line with $m = -3$ and $b = 5$

$$y = mx + b$$

$$y = -3x + 5$$

2.8 Graphing Inequalities

* Graphing on xy plane

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

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

a) $(6, -3)$

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

$$18 + (-12) > 8$$

$$6 > 8 \text{ Nope!}$$

b) $(0, 2)$

$$3 \cdot 0 + 4 \cdot 2 > 8$$

$$8 > 8$$

c) $(-2, -1)$

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

$$-6 + -4$$

$$\downarrow$$

$$-10 > 8$$

d) $(-3, 5)$

$$3 \cdot (-3) + 4 \cdot 5$$

$$-9 + 20$$

$$\downarrow$$

$$11 > 8$$

Graphing them

$$y < 2x - 2$$

$$y = mx + b$$

$$Ax + By = C$$

1st - Check if Slope-Int. form or Standard form

$$m = 2 \text{ or } \frac{2}{1} \text{ (directions)} \quad b = -2 \text{ (start on y)}$$

2nd - Plot points, use dashed for $<$ or $>$
Solid for \leq or \geq

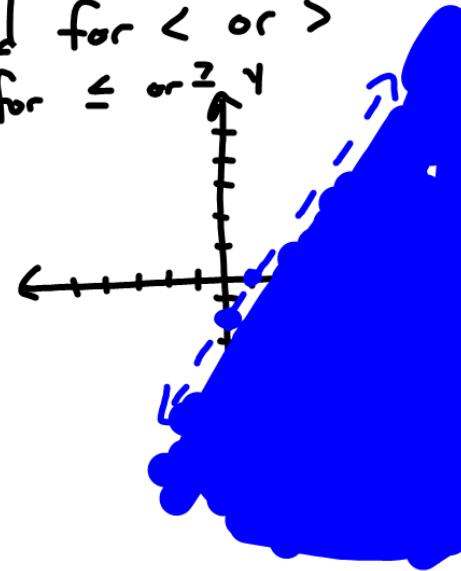
Use dashed!

3rd - Pick point & plug in.
Shade if true.

$$(0, 0) \text{ \& } y < 2x - 2$$

$$0 < 2(0) - 2 \rightarrow \text{No Shade}$$

$$0 < -2$$



Graph

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

1st - Standard form... find intercepts!

$$\frac{5x}{5} = \frac{-4}{5}$$

$$x = -0.8$$

$$\frac{-2y}{-2} = \frac{4}{-2}$$

$$y = -2$$

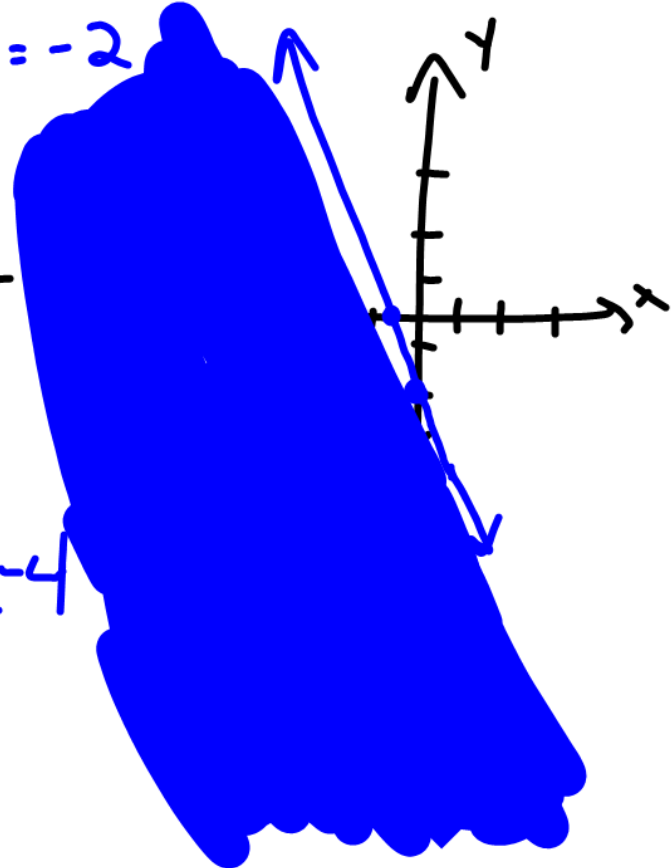
2nd - Plot points & do line

3rd - Pick point & shade

$$(0,0) \text{ ? } 5x - 2y \leq -4$$

$$5(0) - 2(0)$$

$$0 \leq -4$$



Homework

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

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

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

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

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

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