

Algebra IIA class notes 3-3

Solving Systems of Linear Inequalities

Warm Up

1. Graph $2x - y > 4$.

① TURN INTO $y = mx + b$

$$\begin{array}{r} 2x - y > 4 \\ -2x \quad -2x \\ \hline -y > -2x + 4 \\ \hline -1 \quad -1 \end{array}$$

÷ by
a (-)
sign
switch

$$y < 2x - 4$$

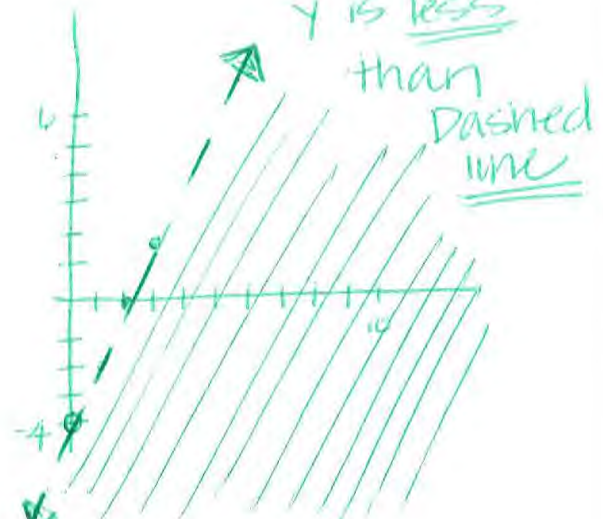
A - graph
-4 first
B - up 2, right 1

Shade

$$y < 2x - 4$$

y is less
than

Dashed
line



Determine if the given ordered pair is a solution of the system of equations.

① Fill in for x & y values

$$2. \begin{cases} 2x + y = 2 \\ 2y - x = -6 \end{cases}$$

$$\begin{array}{l|l} 2(2) + (-2) = 2 & 2(-2) - 2 = -6 \\ 4 - 2 = 2 & -4 - 2 = -6 \\ 2 = 2 \checkmark & -6 = -6 \checkmark \end{array}$$

Yes, a solution

$$3. \begin{cases} x - y = -1 \\ x + 2y = 2 \end{cases}$$

$$\begin{array}{l|l} -4 - 3 = -1 & -4 + 2(3) = 2 \\ -7 = -1 & -4 + 6 = 2 \\ \boxed{\text{No}} & 2 = 2 \checkmark \end{array}$$

$(-4, 3)$ not a solution

ALWAYS FILL IN
TO BOTH EQUATIONS

HELPFUL HINT:

If you are unsure which direction to shade, use the origin as a test point.

$$B) \begin{cases} y < -3x + 2 \\ y \geq -1 \end{cases}$$

$$C) \begin{cases} x - 3y < 6 \\ 2x + y > 1.5 \end{cases}$$

- B) Leyla is selling hot dogs and spicy sausages at the fair. She has only 40 buns, so she can sell no more than a total of 40 hot dogs and spicy sausages. Each hot dog sells for \$2, and each sausage sells for \$2.50. Leyla needs at least \$90 in sales to meet her goal. Write and graph a system of inequalities that models this situation.

Homework: Read Section 3-3 & Take Notes from the reading (T,D,P's)

Complete exercises #1-6 & 11-15 pg. 202