Linear Inequalities, continued

1) Is the ordered pair (3, -8) a solution to the inequality $y \geq -x - 5$?

$-8 \geq -3 - 5$

$-8 \geq -8$ ✓

Yes

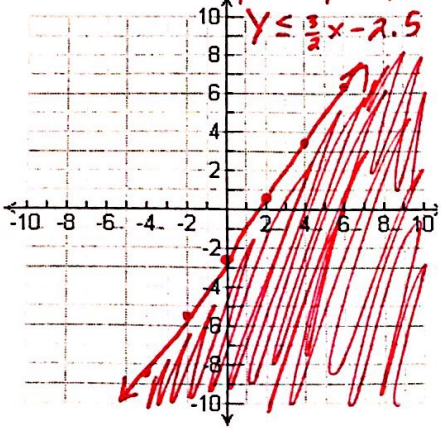
YOU MUST SOLVE FOR Y BEFORE SHADING!!!!

2) Graph: $6x - 4y \geq 10$

$-6x \quad -6x$

$\frac{-4y}{-4} \geq \frac{-6x}{-4} + \frac{10}{-4}$

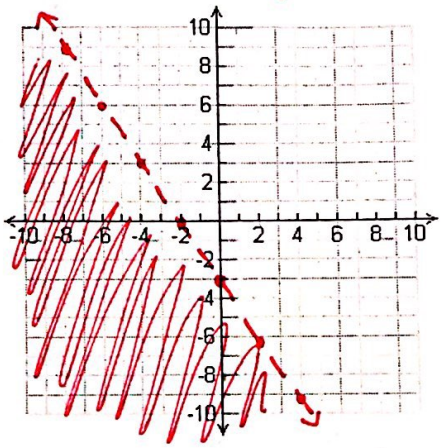
$y \leq \frac{3}{2}x - 2.5$



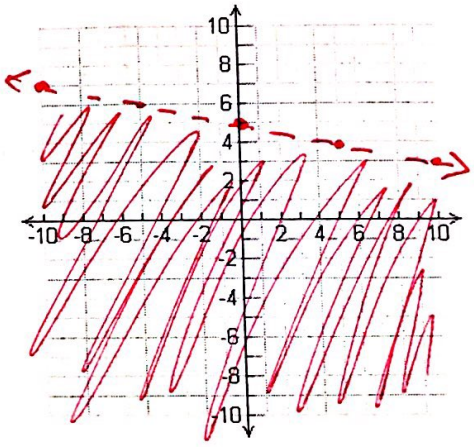
3) Graph: $-2y > 3x + 6$

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

$y < -\frac{3}{2}x - 3$



4) $y < -\frac{1}{5}x + 5$



5) Adam is ordering helium balloons for his sister's birthday. He has up to $15 to spend. Decorative balloons cost $3.00 each and solid colored balloons cost $0.50 each.

Let *x* be the number of decorative balloons and *y* be the number of solid colored balloons that he buys.

a. Write an inequality to describe the situation.

$3x + 0.5y \leq 15$ (5,0) (0,30)

b. Graph the solutions.

c. Give two possible combinations of decorative and solid colored balloons Adam can order.

Solid

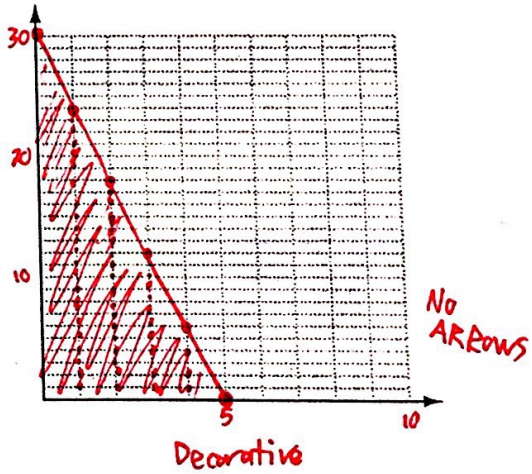
2 decorative, 10 solid colored | 4 decorative, 3 solid colored

d. What does the x intercept represent?

If he buys 5 decorative balloons, he can buy 0 solid colored balloons

e. What does the y intercept represent?

If he buys 0 decorative balloons, he can buy 30 solid-colored balloons



6) The royalties for the high school play are $250. Tickets to the play cost $5 for students and $8 for nonstudents. Write a linear inequality to describe the number of student and nonstudent tickets that need to be sold so that the drama class can pay the royalties?

x = # student tickets

y = # nonstudent tickets

Define each of your variables.

$5x + 8y \geq 250$

7) Trey is buying peach and blueberry yogurt cups. He will buy at most 8 cups of yogurt. **Let *x* be the number of peach yogurt cups and *y* be the number of blueberry yogurt cups he buys.**

a. Write an inequality to describe the situation.

$x + y \leq 8$

b. Graph the solutions.

c. Give two possible combinations of peach and blueberry yogurt that Trey can choose.

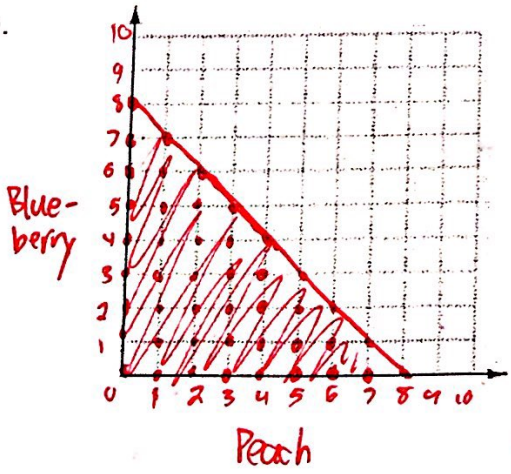
3 peach, 4 blueberry | 6 peach, 2 blueberry

d. What does the x intercept represent?

He can buy 8 peach + 0 blueberry.

e. What does the y intercept represent?

He can buy 0 peach + 8 blueberry.



10) Why does the graph of $y \geq x$ contain a solid line while the graph of $y > x$ contains a dotted line?

A solid line represents points that are solutions. The boundry line is $y = x$; all points where $y = x$ will make $y \geq x$ true, but will not make $y > x$ true. A dotted line represents that the points directly on the line aren't actually solutions

11) A froyo shop wants to have at least 100 gallons of froyo in stock. The table shows the current inventory. Write an inequality that represents the numbers of gallons of vanilla and chocolate that have to be in stock.

Flavor	Gallons
Cake Batter	20
Chocolate	x
ookies & Cream	35
Red Velvet	17
Vanilla	y

$x + y + 20 + 35 + 17 \geq 100$

or

$x + y + 72 \geq 100$

or

$x + y \geq 28$

Ramona has $18 that she can spend on food for her dog. Dry dog food costs $5.50 per small bag and dog food costs $2.00 per can.

rite a linear inequality that describes how many bags and cans of dog food Ramona can buy.

ne your variables

x = bags of dry dog food
y = cans of wet dog food

$5.50x + 2y \leq 18$

n Ramona buy 3 bags of dry dog food and 5 bags of wet dog food? Explain your answer.

$5.50(3) + 2(5) \leq 18$?

$16.50 + 10 \leq 18$?

No, it will cost $26.50

$26.50 \leq 18$