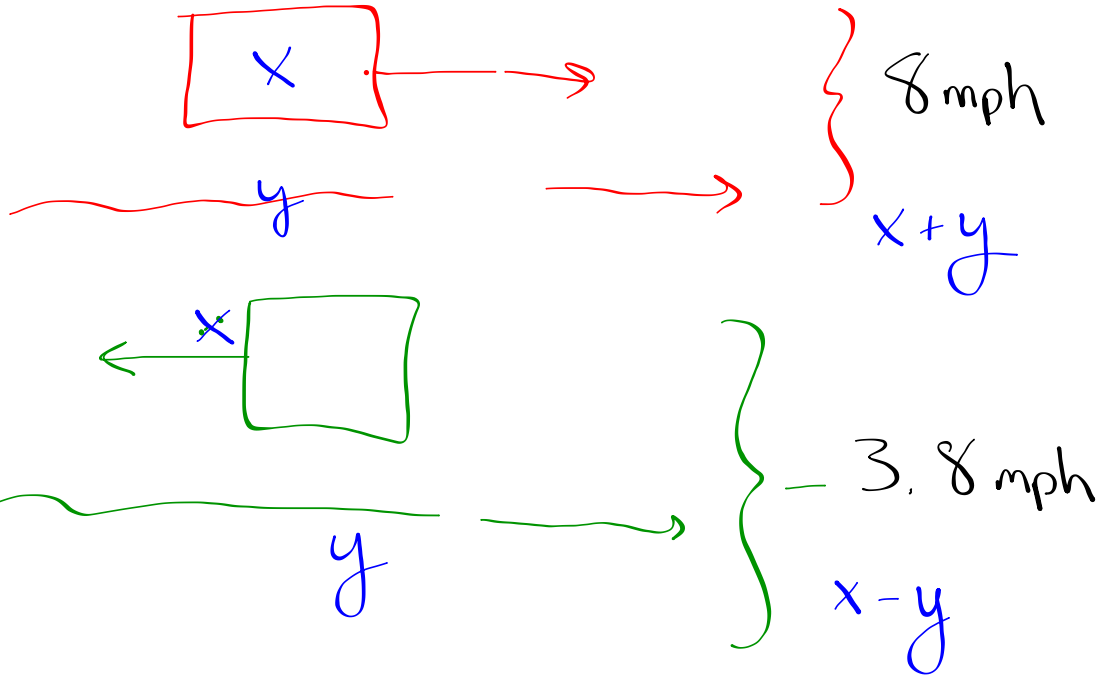
Announcement:

There will be a unit test over chapter 7 (Sections 7.1 - 7.6) on Friday, April 20



boat = 5.9 mph

current = 2.1 mph

$x + y = 8$

$x - y = 3.8$

$5.9 - y = 3.8$

$-5.9 \quad -5.9$

$-y = -2.1$

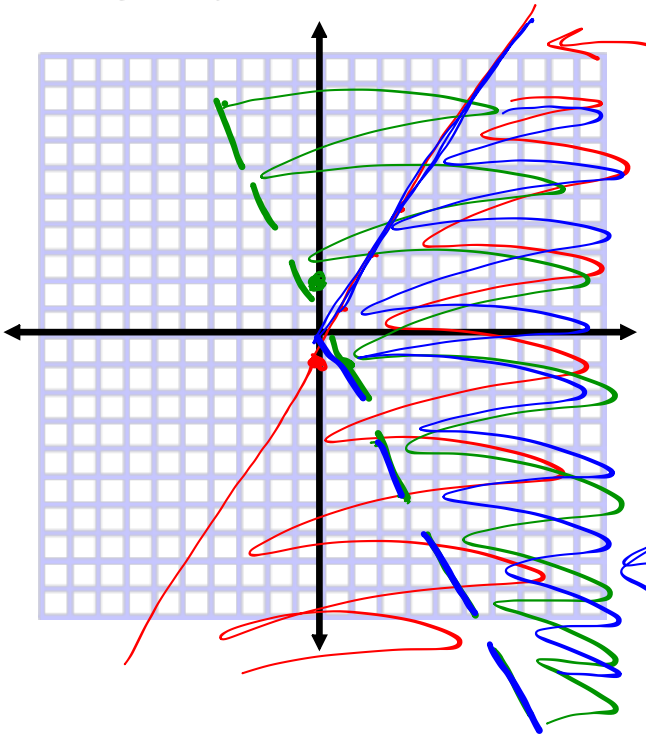
$y = 2.1$

$\frac{2x}{2} = \frac{11.8}{2}$

$x = 5.9$

Homework Review - Section 7.5, practice WS

Solving systems of linear inequalities:



What is a linear inequality?

$y \leq 2x - 1$

What does the graph look like?

What is a system of linear inequalities?

$y > -3x + 2$

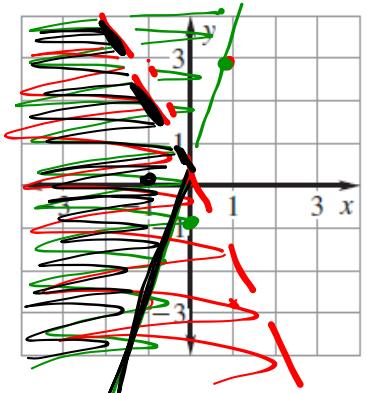
What does the graph look like?

Graphing Systems of Linear Inequalities

$3x + y < 0$

$4x - y \leq 1$

$y < -3x$



$4x - y \leq 1$

$-4x \quad -4x$

$\frac{-y}{-1} \leq \frac{-4x+1}{-1}$

$y \geq 4x - 1$

$y \geq -\frac{2}{3}x + \frac{4}{5}$

$\frac{1}{4}x \rightarrow 1/4x$

$\leqslant \rightarrow <=$

$y >= -2/3x + 4/5$

Graph each linear inequality
(PUT INTO y = mx + b format)
Find the intersection of the shaded regions
- the "double shaded" region is the solution
to the system

Check your work... $(-1, 0)$

$3(-1) + 0 < 0$

$-3 + 0 < 0$

$-3 < 0$ ✓

$4(-1) - 0 \leq 1$

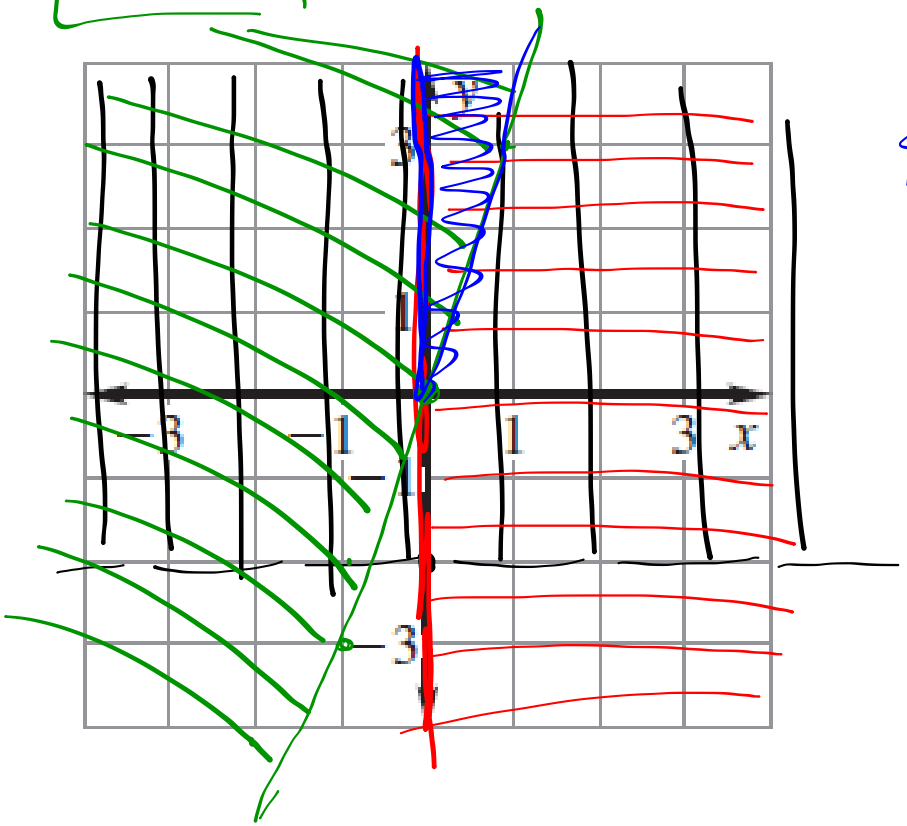
$-4 - 0 \leq 1$

$-4 \leq 1$ ✓

Systems with Three Inequalities:

$y > -2$, $x \geq 0$

$y \geq 3x$



(1,4)

$4 > -2$ ✓

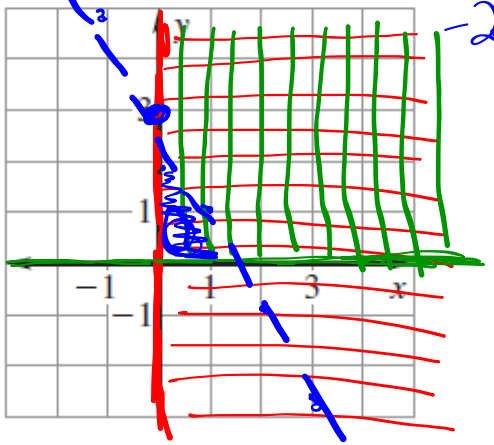
$1 \geq 0$ ✓

$4 \geq 3(1)$

$4 \geq 3$ ✓

$x \geq 0, y \geq 0$

$2x + y < 3$



$2x+y<3$

$-2x \quad -2x$

$y<-2x+3$

$(1,0)$

$1 \geq 0$ ✓

$0 \geq 0$ ✓

$2(1)+0<3$

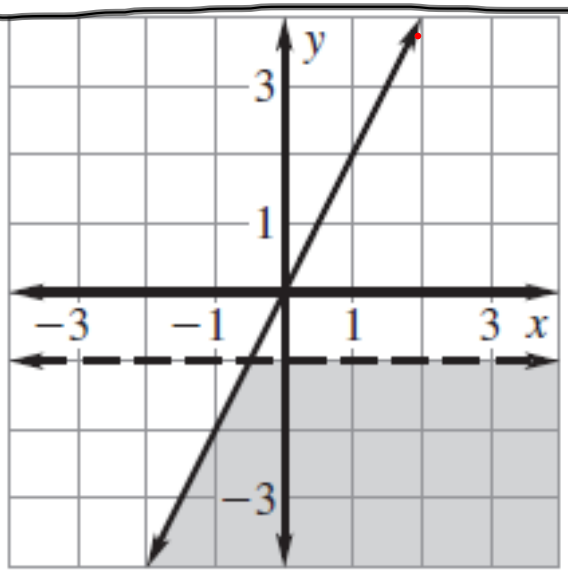
$2+0<3$

$2<3$ ✓

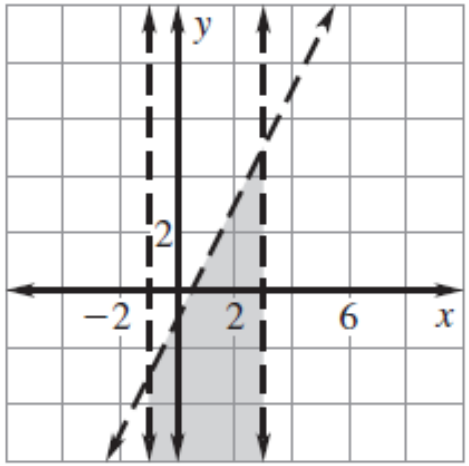
Write a system of linear inequalities

Exercise You work out at least 10 hours a week, but no more than 15 hours a week. You divide your exercise time between swimming and running. This week, you want to spend at least twice the amount of time on swimming as on running. Write and graph a system of linear inequalities that gives the amounts of time you spend on each different kind of exercise. Then give two possible ways you can exercise.

From text, write the inequalities



From a graph, identify the inequalities by using slope-intercept form

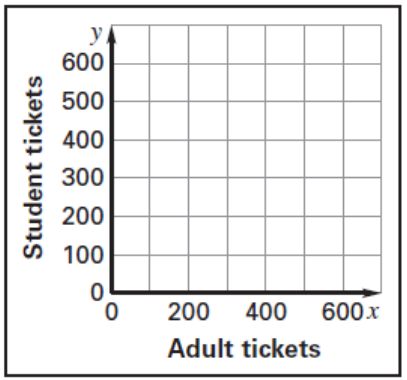

y
2
−2
2
6
x

School Play The tickets for a school play cost \$8 for adults and \$5 for students. The auditorium in which the play is being held can hold at most 525 people. The organizers of the school play must make at least \$3000 to cover the costs of the set construction, costumes, and programs.

a. Write a system of linear inequalities for the number of each type of ticket sold.

b. Graph the system of inequalities.

c. If the organizers sell out and sell twice as many student tickets as adult tickets, can they reach their goal? *Explain* how you got your answer.



Homework:

p. 469; 3-8, 9-18 by 3, 25-29 odd, 31, 37, 39