S 3.7 #s 2, 5, 10, 11, 15, 44 - 46

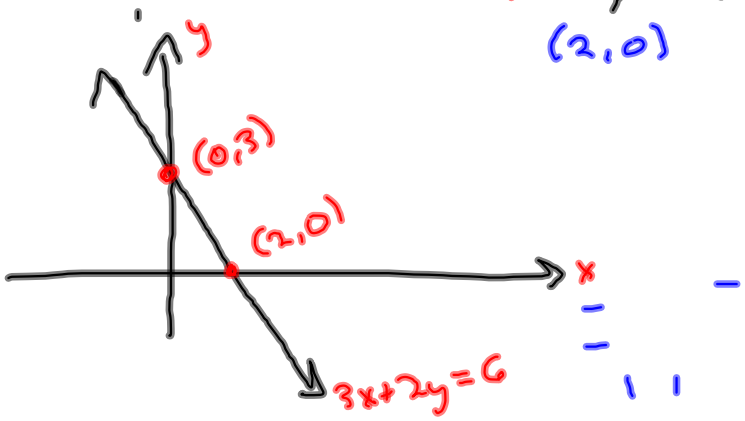
Today - Knock out 3.7 fast & then take a step back

$3x+2y=6$

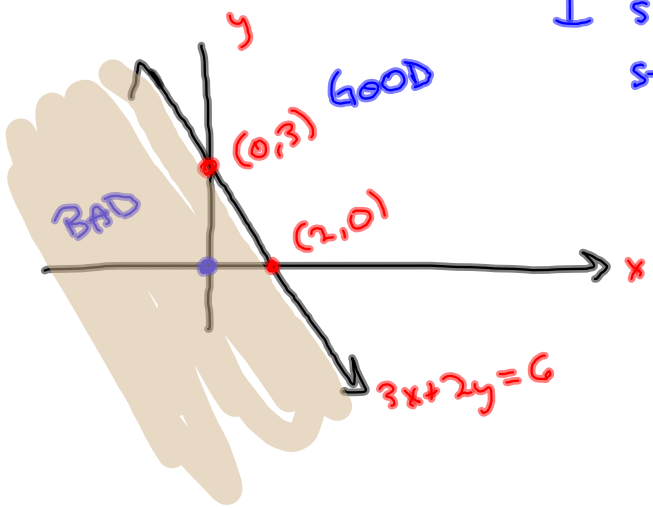
x	y
0	3
2	0

$3(0)+2y=6 \Rightarrow y=3$ (0,3)

$3x+2(0)=6 \Rightarrow x=2$, according to Beatriz. (2,0)



Now, graph $3x+2y \geq 6$



I scratch out the bad stuff.

Test a point off the line.

(0,0):

$3(0)+2(0) \geq 6$?

$0 \geq 6$?

No!

(0,0) BAD

Graphing a System of Inequalities

We only do INTERSECTIONS.

All inequalities must be satisfied.

$3x+2y \leq 6$

$2x-5y \geq 10$

$3x+2y=6$

x	y
0	3 → (0,3)
2	0 → (2,0)

(0,0):

$0 \leq 6$? yes

(0,0) Good

Tarzan Like.

$2x-5y=10$

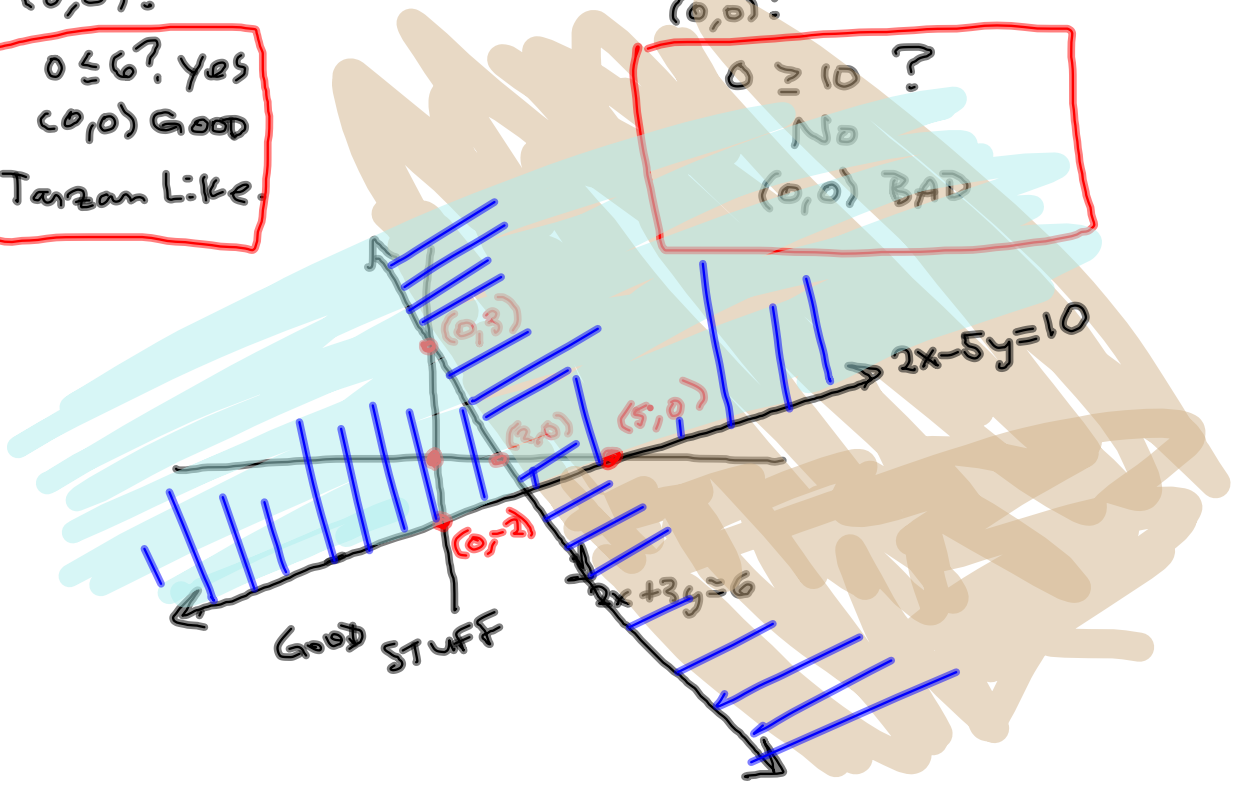
x	y
0	-2 → (0,-2)
5	0 → (5,0)

(0,0):

$0 \geq 10$?

No

(0,0) BAD



$3x + 2y \leq 6$

$5x - 2y \leq 10$

$x \geq 0$

$y \geq 0$

} Pretty typical system of constraints for a linear programming problem.

x	y	
0	3	(0,3)
2	0	(2,0)

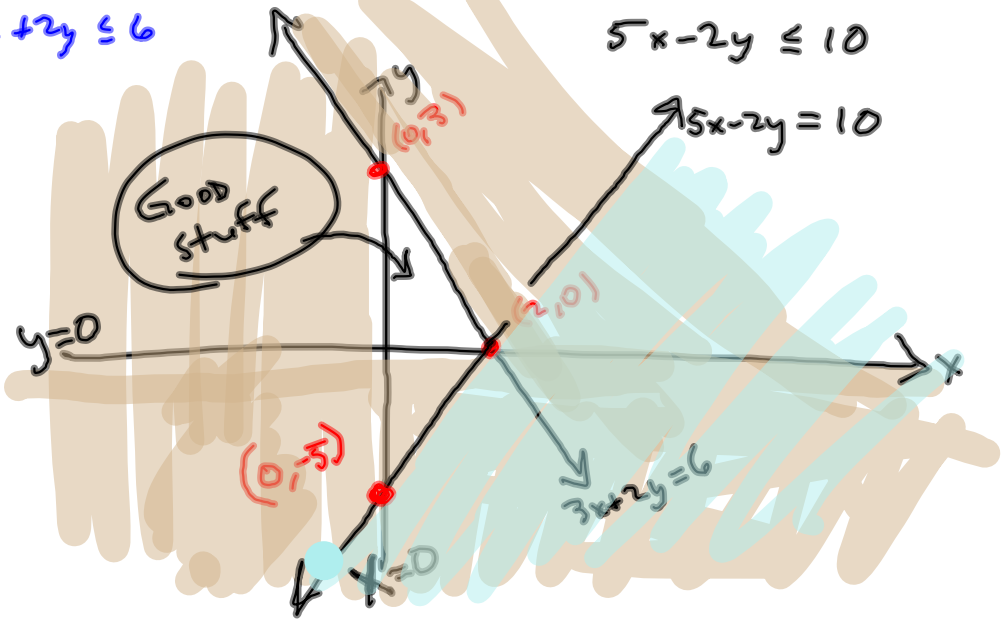
(0,0) Good

$3x + 2y \leq 6$

x	y	
0	-5	(0,-5)
2	0	(2,0)

(0,0) Good

$5x - 2y \leq 10$



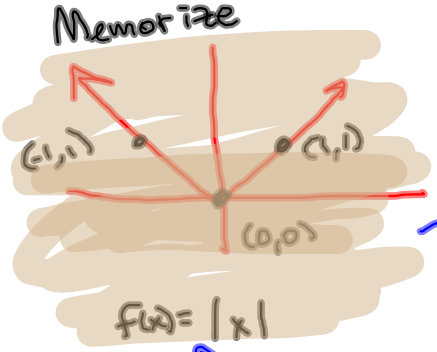
3.6 #30,

$f(x) = |x|$

$g(x) = |x-3|+5 = f(x-3)+5$

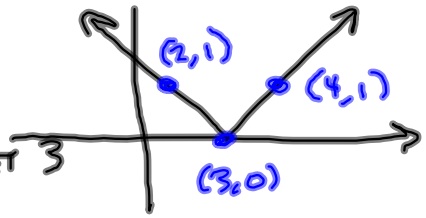
Right 3 Up 5

Memorize



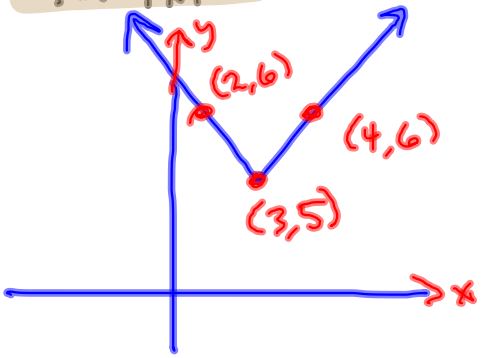
$f(x) = |x|$

RIGHT 3



$|x-3| = f(x-3)$

Up 5



$g(x) = |x-3|+5 = f(x-3)+5$

§3.6 Questions?

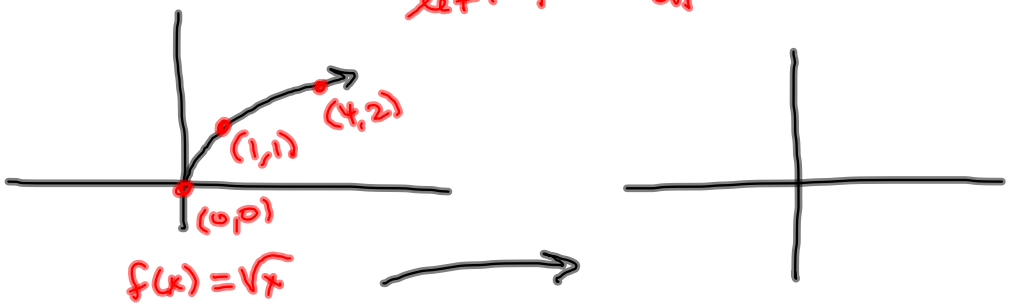
#30 Kinda like #1.

$g(x) = \sqrt{x+7} + 11$

$f(x) = \sqrt{x} \Rightarrow g(x) = f(x+7) + 11$

$(x+7)^{\frac{1}{2}} + 11$

left 7 up 11



Not Same

$\sqrt{3^2+4^2} = \sqrt{9+16} = \sqrt{25} = 5$

$\sqrt{3^2} + \sqrt{4^2} = 3+4 = 7$

Similar Error

$(x+2)^2 = (x+2)(x+2) = x^2+2x+2x+4$

$= x^2+4x+4$

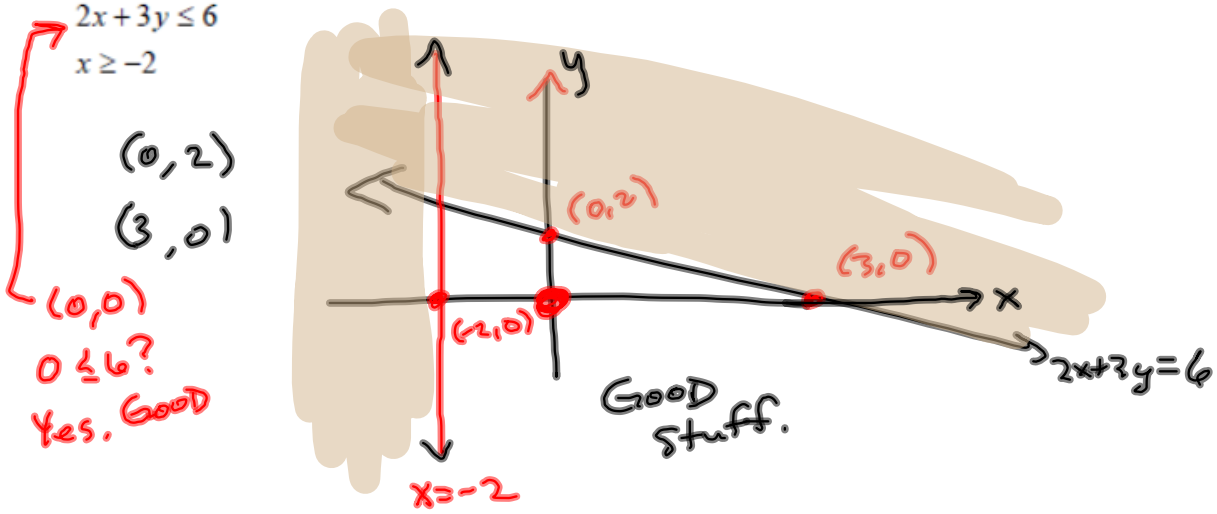
Many students think it's just x^2+2^2

Sep 20-9:44 AM

3. (5 pts) Graph the *intersection* of the following inequalities on the same set of coordinate axes. In other words, assume this is an AND situation, as in class. Hint: Use your work from #2.

$2x + 3y \leq 6$

$x \geq -2$



4. (5 pts) Use the slope and y-intercept to graph $f(x) = \frac{2}{3}x - 2$. (I don't need to see an x-intercept.)

$m = \frac{2}{3}$ $(0, b) = (0, -2)$