099 §4.4 #s 11-19, 23

#s 11-18 Graph the solution set.

(11) $x+y \leq 3$

$x-3y \leq 3$

$x \geq -2$

x	y
0	3
3	0

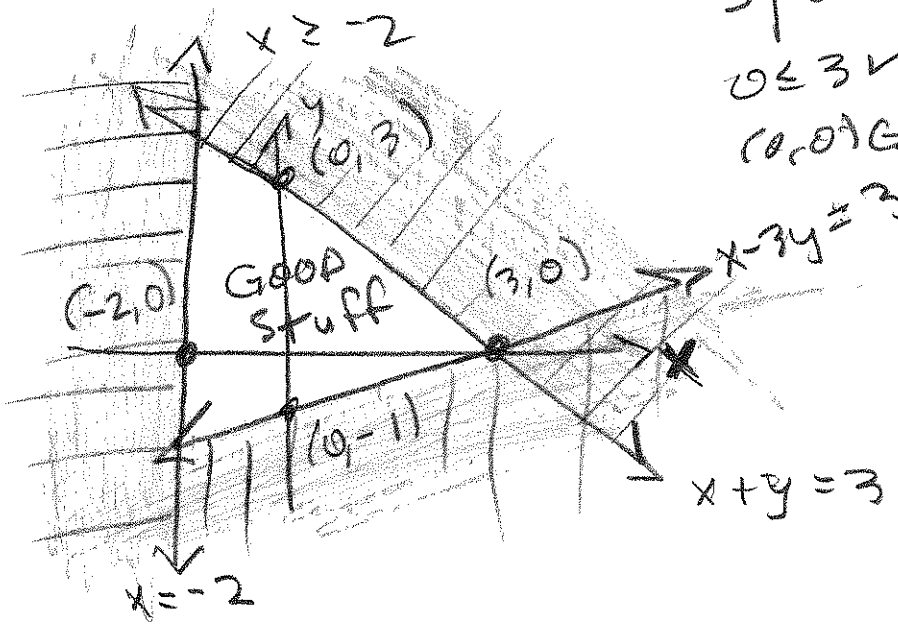
$0 \leq 3$ ✓

(0,0) GOOD

x	y
0	-1
3	0

$0 \leq 3$ ✓

(0,0) ✓



$x \geq -2$

(0,0) good

(13) $x+y \leq 2$

$-x+y \leq 2$

$y \geq -2$

x	y
0	2
2	0

$0 \leq 2$ ✓

(0,0) ✓

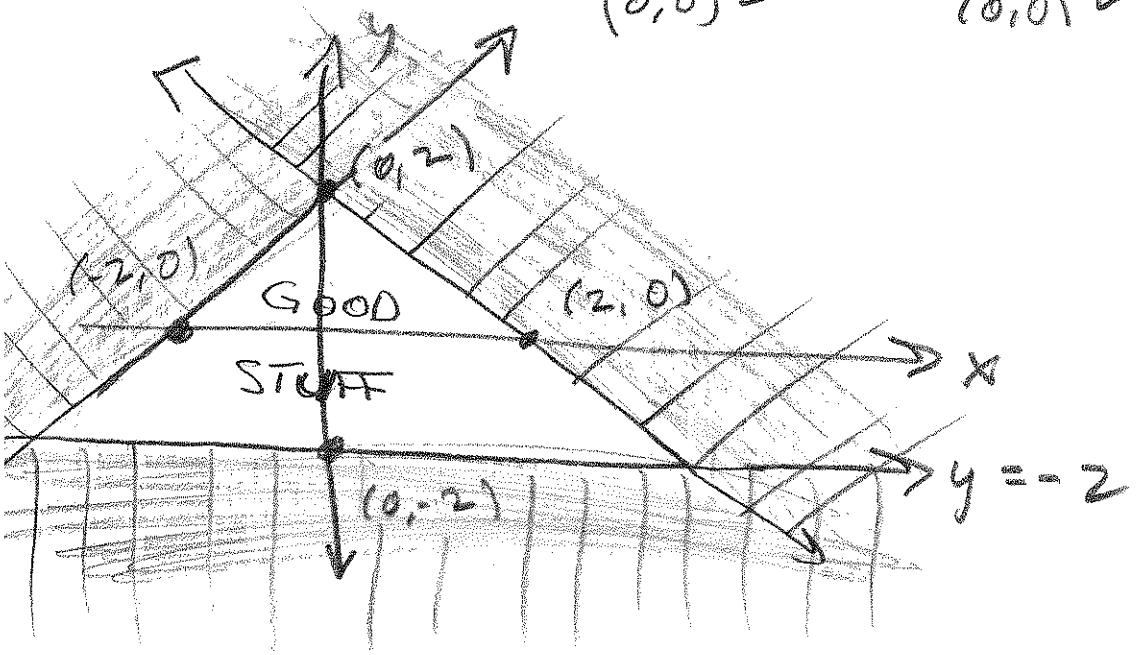
x	y
0	2
-2	0

$0 \leq 2$ ✓

(0,0) ✓

$y \geq -2$

(0,0) good



099 §4.3 #s 17, 19, 23

(17) $2x + 3y \leq 6$

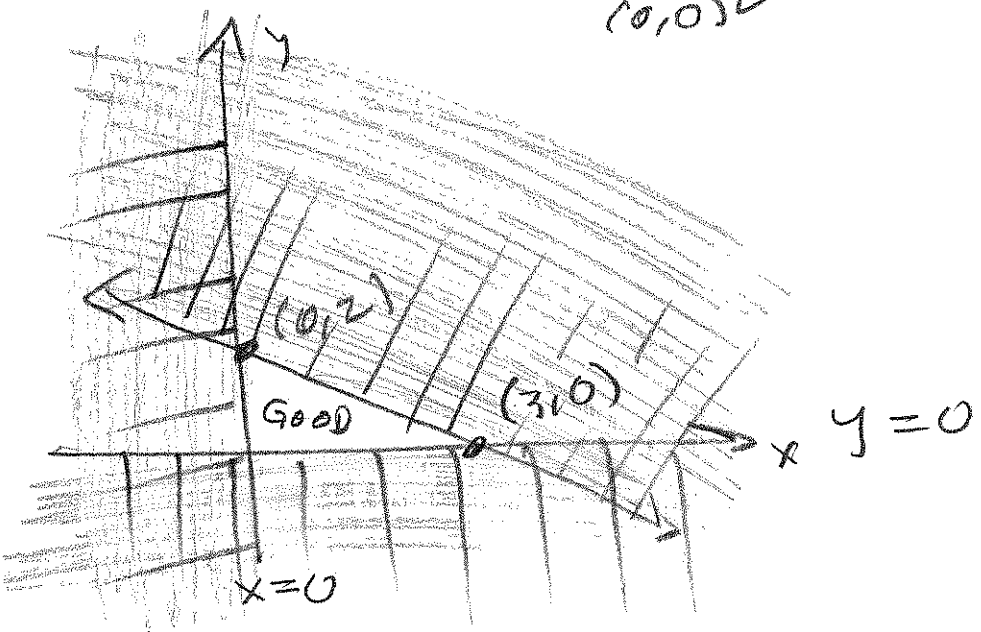
$x \geq 0$

$y \geq 0$

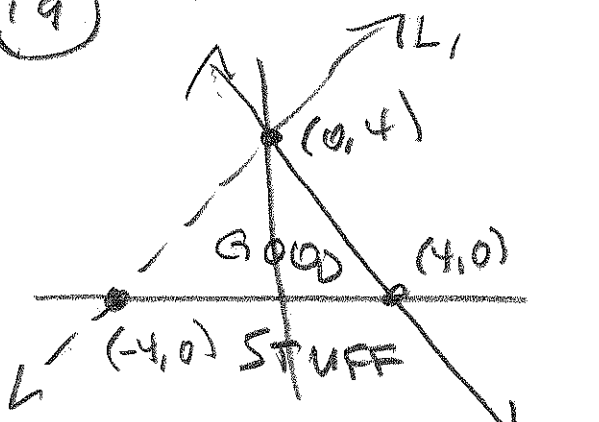
x	y
0	2
3	0

$0 \leq 6$ ✓

$(0,0)$ ✓



(19) Find a system that fits the picture



L_1: $m = \frac{4-0}{0-(-4)} = 1$

$y = x + 4$

$(0,0)$ is good

is $0 < 0 + 4$? yes

$y < x + 4$ L_1

L_2: $m = \frac{4-0}{0-4} = -1$

$y = -x + 4$

$0 \leq 4$?

yes. So we want "$\leq$"

$y \leq -x + 4$ L_2

099 § 4.3 #23

(23) Want to spend no more than $40 on 55¢ & 65¢ stamps

Want at least twice as many 55¢ stamps as 65¢ stamps

Want more than 15 55¢ stamps

Let x = # of 55¢ stamps

y = " " 65¢ "

(a) Then $.55x + .65y \leq 40$

Twice as many 55¢ stamps: $x \geq 2y$

more than 15 55¢ stamps: $x \geq 15$

(b) If he buys 20 55¢ stamps ($x = 20$), what is the max # of 65¢ stamps?

$.55x + .65y \leq 40$

$.55(20) + .65y \leq 40$

$11 + .65y \leq 40$

$.65y \leq 29$

$y \leq \frac{29}{.65} \approx 44.615$ But that violates $x \geq 2y$. Since this is no constraint (the $), $x \geq 2y$ is what counts, so $y \leq 10$