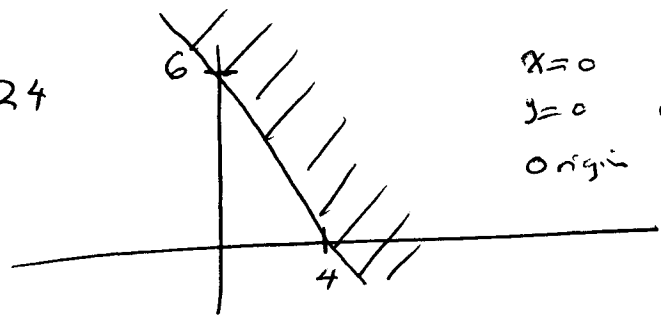
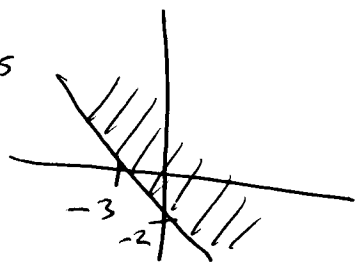


Sect 5.1 #7 $6x + 4y \geq 24$



$x=0$ $4y=24$ $y=6$
 $y=0$ $6x=24$ $x=4$
 origin $0+0 \geq 24$ false

#15



$\frac{x}{-3} + \frac{y}{-2} = 1$
 multiply by 6

$-2x - 3y = 6$ or

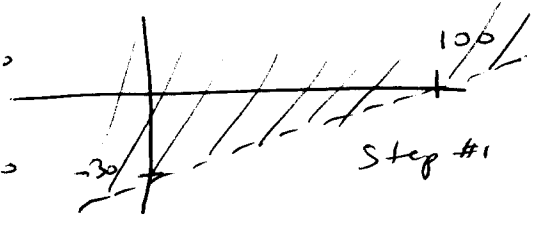
$2x + 3y = -6$

Since origin $0+0 \geq -6$ use $2x + 3y \geq -6$

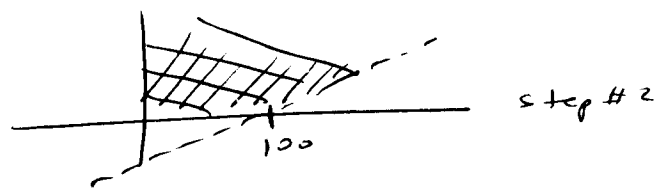
#31 $15x - 50y < 1500$
 $x \geq 0, y \geq 0$

let $x=0$ $-50y=1500$
 $y=-30$

origin $0-0 < 1500$ ok
 let $y=0$ $15x=1500$
 $x=100$



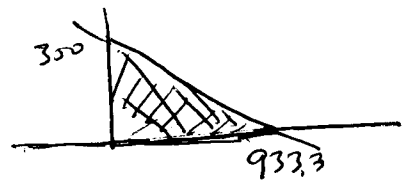
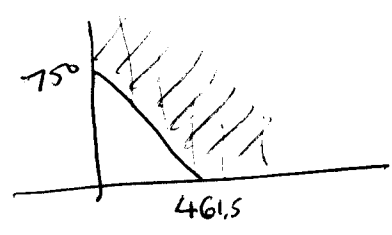
given $x \geq 0, y \geq 0$



	A	B
N	26%	16%
P	3%	8%
Potash	3%	8%

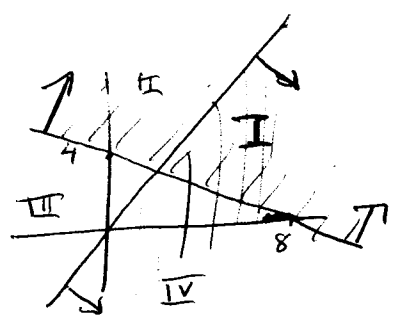
let $x = A$ lbs fertilizer A
 $y = B$ lbs fertilizer B

(A) $0.26x + 0.16y \geq 120$
 (B) $0.03x + 0.08y \leq 28$



Sect 5.2

#3 $x + 2y \geq 8$
 $3x - 2y \geq 0$



region I

The first eq. I & II }
 second eq. I & IV } **I**

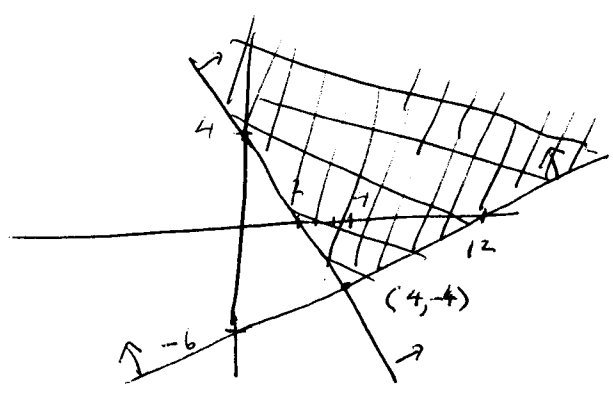
Set 5.2

Math 107 (2)
 Prof. R. B. Goldstein
 Barnett (2nd ed) Chap 5 HW

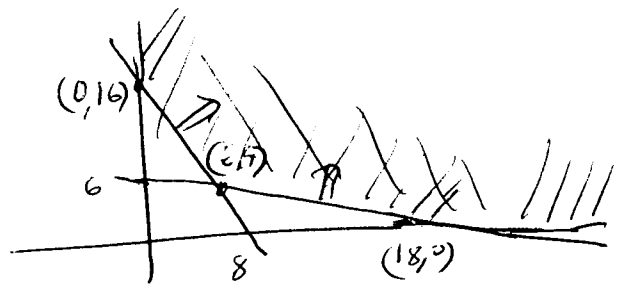
#7 $x - 2y \leq 12$
 $2x + y \geq 4$

$$\begin{array}{r} x - 2y = 12 \\ 4x + 2y = 8 \\ \hline 5x = 20 \\ x = 4, \end{array}$$

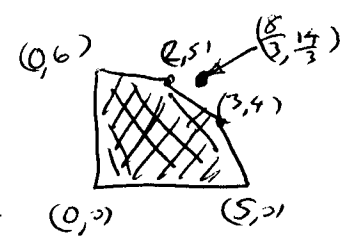
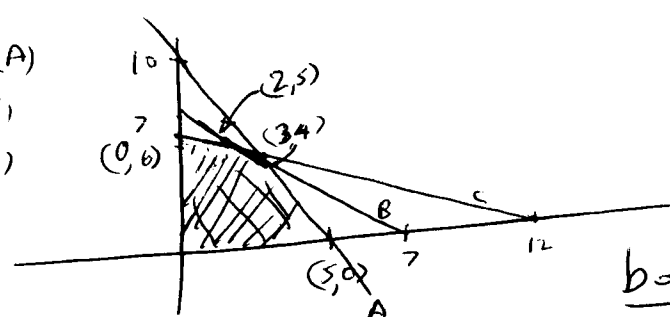
$$\begin{array}{l} 4 - 2y = 12 \\ -2y = 8 \\ y = -4 \end{array}$$



#15 $x + 3y \geq 18$
 $2x + y \geq 16$
 $x \leq 0$
 $y \leq 0$



#13 $2x + y \leq 10$ (A)
 $x + y \leq 7$ (B)
 $x + 2y \leq 12$ (C)
 $x \geq 0$
 $y \geq 0$

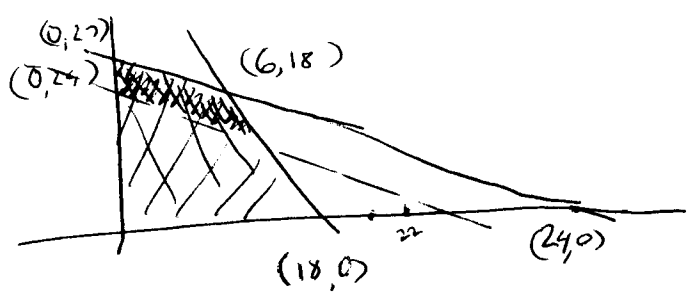


A+B $\begin{cases} 2x + y = 10 \\ x + y = 7 \end{cases} \Rightarrow \underline{(3,4)}$

B+C $\begin{cases} x + y = 7 \\ x + 2y = 12 \end{cases} \Rightarrow \underline{(2,5)}$

bounded
 $A \times \begin{cases} 2x + y = 10 \\ x + 2y = 12 \end{cases} \Rightarrow (\frac{8}{3}, \frac{4}{3})$
 however does not satisfy (B)

#11 $6x + 4y \leq 108$
 $x + y \leq 24$
 $x \geq 0, y \geq 0$
 let $x = \#$ trick skis
 $y = \#$ slalom skis



$P = 50x + 60y$

(A) $50(10) + 60(10) = 1,100$

(B) $50x + 60y > 1100$

any pt on $50x + 60y = 1100$ for $x \geq 0, y \geq 0$
 ex. $(22,0), (16,5), (10,10), (4,15)$

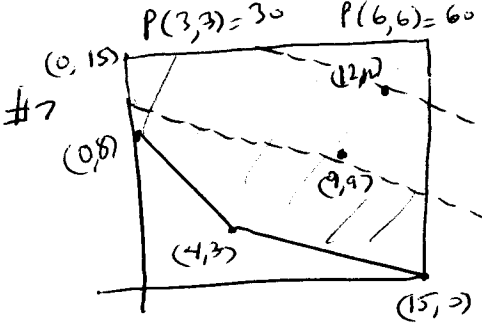
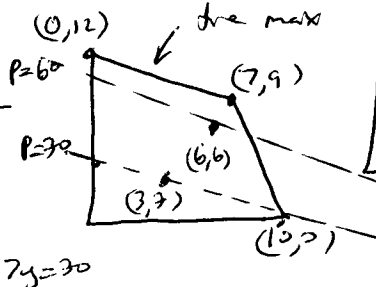
any feasible pts. above line is darkly shaded region
 ex $(10,11), (1,10)$ or $(16,18)$
 $P = 1160 \quad 1150 \quad 1880$

Sect 5.3

Math 107 (3)
 Prof. R.B. Goldstein
 Barnett (2nd Ed) Chap 5 HW

#3

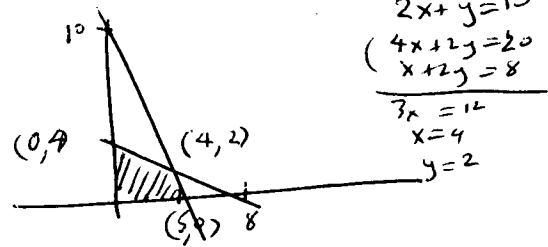
x	0	10	7	0
y	0	0	9	12
$P=3x+7y$	6	30	84	84



$C = 3x + 8y$
 $C(9,9) = 99$
 $C(12,12) = 132$

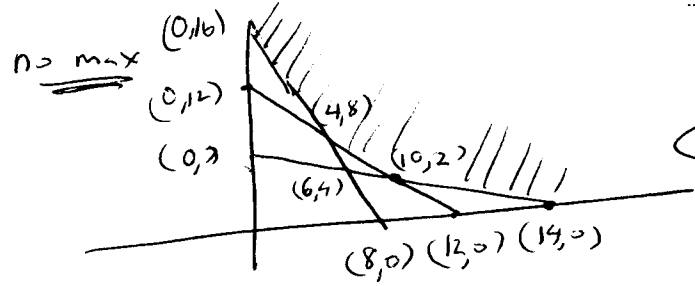
x	0	4	15	15	0
y	8	3	0	15	15
C	64	36	45	165	120

#9 Max $P = 5x + 5y$
 s.t. $2x + y \leq 10$
 $x + 2y \leq 8$
 $x, y \geq 0$



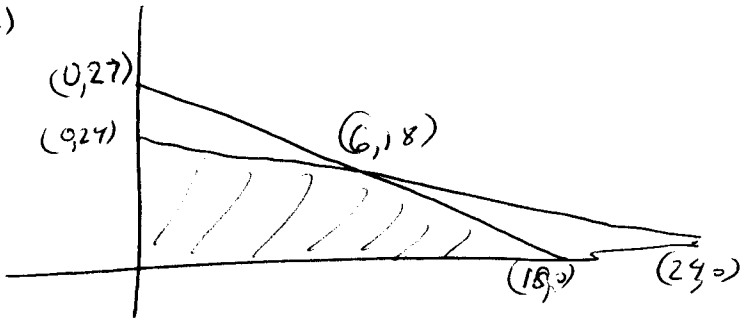
x	y	P
0	0	0
5	0	25
4	2	30
0	4	20

#15 $Z = 10x + 30y$
 s.t. $2x + y \geq 16$
 $x + y \geq 14$
 $x + 2y \geq 14$
 $x, y \geq 0$



x	y	Z
0	16	480
4	8	280
10	2	160
14	0	140

#31 Max $P = 40x_1 + 30x_2$ (see #41.14 s.c.)
 s.t. $6x_1 + 4x_2 \leq 108$
 $x_1 + x_2 \leq 24$
 $x_1, x_2 \geq 0$



x_1	x_2	P
0	0	0
18	0	720
6	18	780
0	24	720

$x_1 = 6$ truck
 skis
 $x_2 = 18$ sleds
 skis
 Profit = \$780