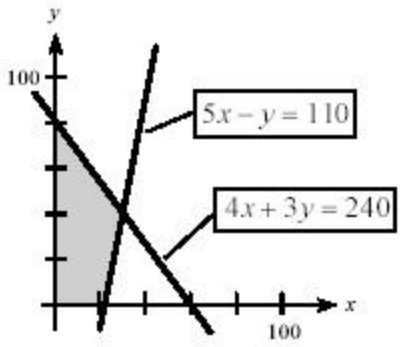
# Assignment #18

HW # 18 4.2 p 313 # 10, 12, 20, 26, 32, 34, 36

**10. a.**

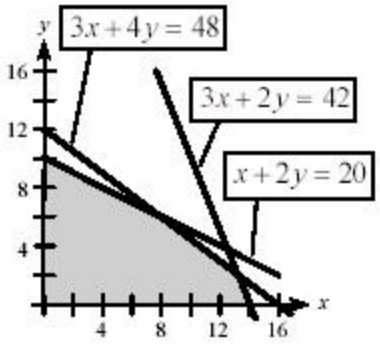



**b.** From the graph we read the intercept corners
(0, 0), (22, 0), and (0,80).

$$\begin{array}{rr} 4x+3y=240 & 4x+3y=240 \\ 5x-y=110 & 15x-3y=330 \\ \hline & 19x = 570 \\ & x = 30 \\ & 5(30)-y=110 \\ & y=40 \end{array}$$

Corner: (30, 40)

**12. a.**




**b.** From the graph we read the intercept corners
(0, 0), (14, 0), and (0, 10)

$$\begin{array}{ll} x+2y=20 & 2x+4y=40 \\ 3x+4y=48 & \underline{3x+4y=48} \\ & x=8 \end{array}$$

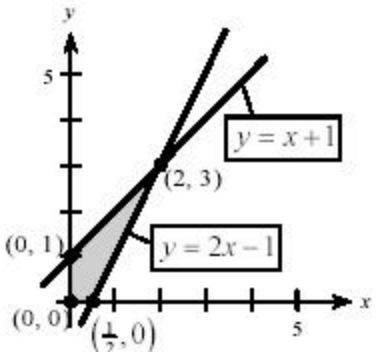
$$8+2y=20$$
$$y=6$$

Corner: (8, 6)

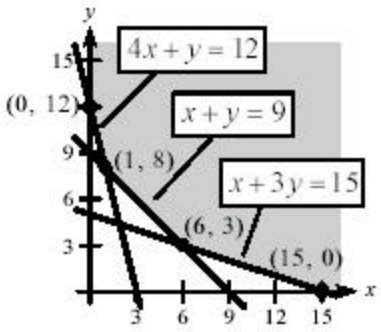
$$\begin{array}{ll} 3x+4y=48 & \\ \underline{3x+2y=42} & 3x+4(3)=48 \\ 2y=6 & x=12 \\ y=3 & \end{array}$$

Corner: (12, 3)

**20.** $\begin{cases} y \le x+1 \\ y \ge 2x-1 \\ x \ge 0,\ y \ge 0 \end{cases}$



**26.** $\begin{cases} y \geq -4x + 12 \\ y \geq -x + 9 \\ y \geq -\frac{1}{3}x + 5 \\ x \geq 0,\ y \geq 0 \end{cases}$



**32.**

| | I | II | |
|---|---|---|---|
| mice | 10 | 25 | $I \le 500$ |
| rabbits | 15 | 15 | $II \le 600$ |

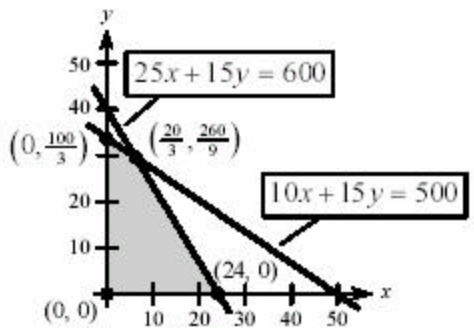
Let $x$ = number of mice and $y$ = the number of rabbits.

**a.** $10x + 15y \le 500$

$25x + 15y \le 600$

$x \ge 0, y \ge 0$

**b.**




$$\begin{array}{r} 25x + 15y = 600 \\ 10x + 15y = 500 \\ \hline 15x \quad\quad = 100 \end{array}$$

$$x = \frac{20}{3}$$

$$10\left(\frac{20}{3}\right) + 15y = 500$$

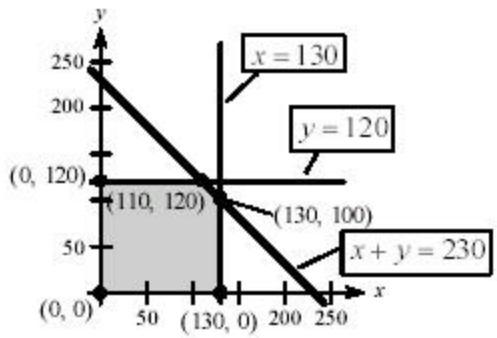
$$15y = \frac{1300}{3}$$

$$y = \frac{260}{9}$$

Feasible corners are $(0, 0)$, $(24, 0)$, $\left(0, \frac{100}{3}\right)$, $\left(\frac{20}{3}, \frac{260}{9}\right)$.

**34. a.** $x$ = number of fender bolts
$y$ = number of bumper bolts
$0 \le x \le 130$
$0 \le y \le 120$
$x + y \le 230$

**b.**




**36. a.** Let $x$ be the number of hours of Star model assembly. Let $y$ be the number of hours of Prostar model assembly.
$30x + 150y \ge 270$
$40x + 40y \ge 200$
$x \ge 0, y \ge 0$

**b.**