

Restrictions

$$x + y \leq 8$$

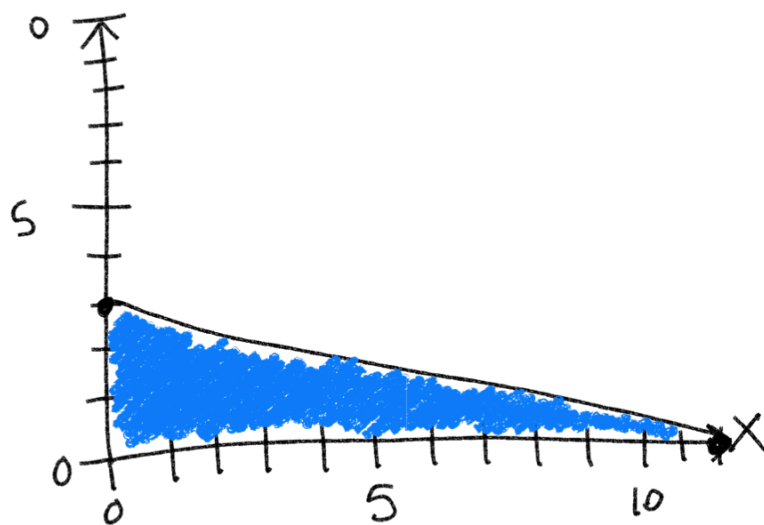
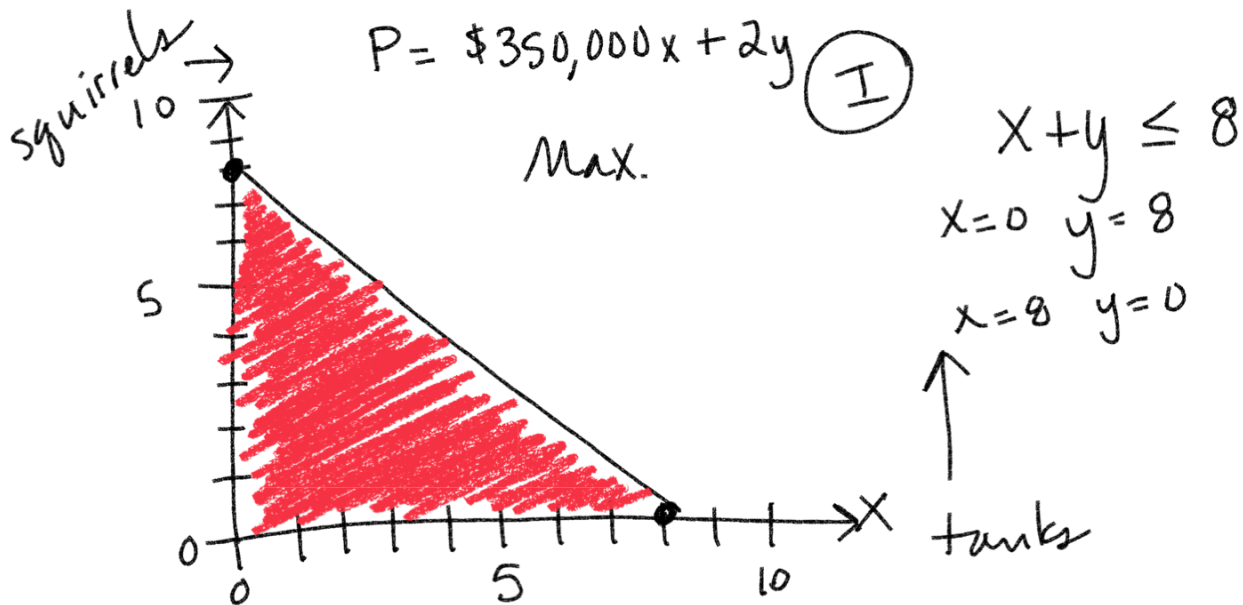
$$2x + 8y \leq 24$$

$$\begin{cases} x \geq 0 \\ y \geq 0 \end{cases} \text{ Quadrant I}$$

x = tank

y = squirrel

1.) Graph.



$$2x + 8y \leq 24$$

$$x = 0 \quad y = 3$$

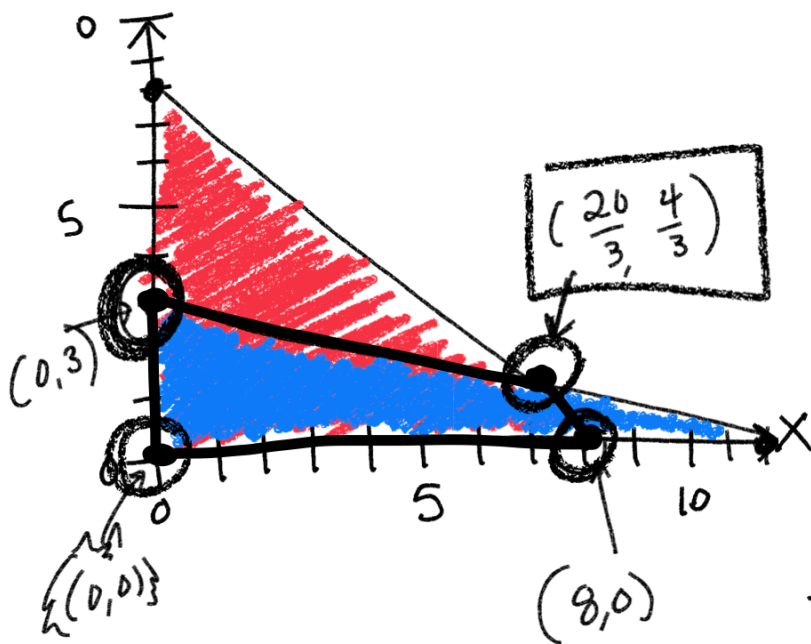
(0,3)

$$\cancel{2x} + \frac{8y}{8} \leq \frac{24}{8}$$

$$y = 3$$

$$2x + 8y \leq 24$$

$$x = 12 \quad y = 0$$



2.) Find Vertices

$$\begin{aligned} -2(x+y=8) \\ 2x+8y=24 \end{aligned}$$

$$\begin{aligned} -2x - 2y &= -16 \\ + 2x + 8y &= 24 \\ \hline \end{aligned}$$

$$\begin{aligned} 6y &= 8 \\ y &= \frac{8}{6} \quad \boxed{\frac{4}{3}} = y \end{aligned}$$

$$x+y=8$$

$$\begin{aligned} x + \frac{4}{3} &= 8 \\ -\frac{4}{3} & \quad -\frac{4}{3} \end{aligned}$$

$$x = \frac{24}{3} - \frac{4}{3} \quad \boxed{\frac{20}{3}}$$

3.) Find Max/Min.

(0,0)

$$350,000x + 2y$$

$$350,000(0) + 2(0) = \$0$$

(0,3)

answers $350,000(0) + 2(3) = \$6$

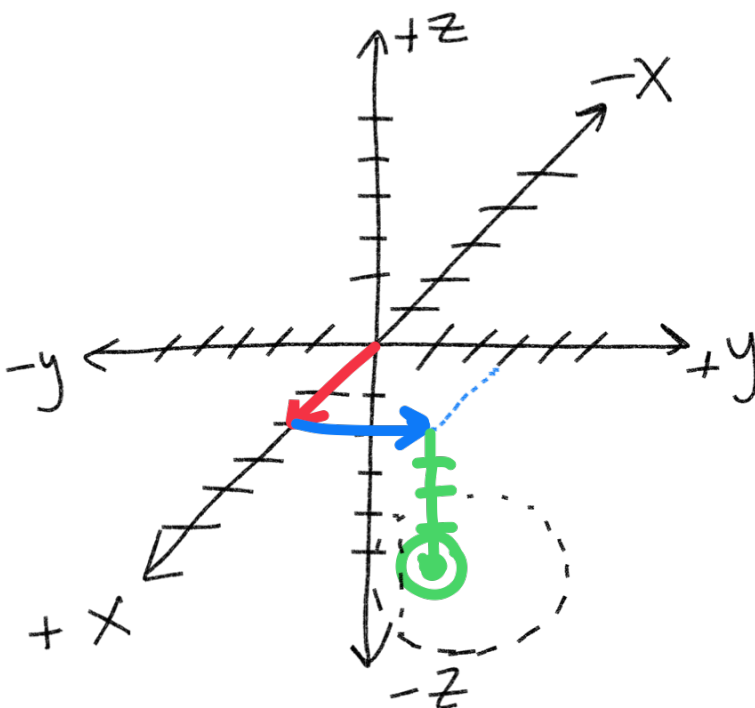
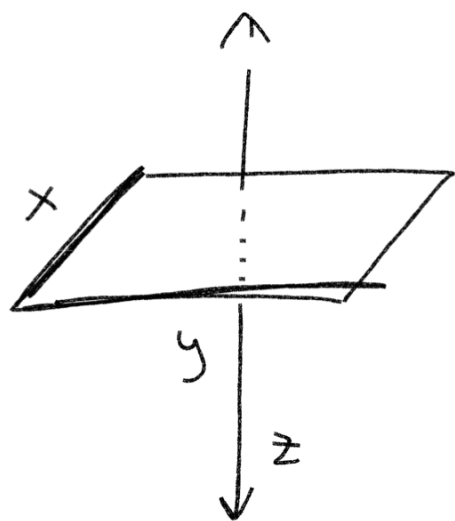
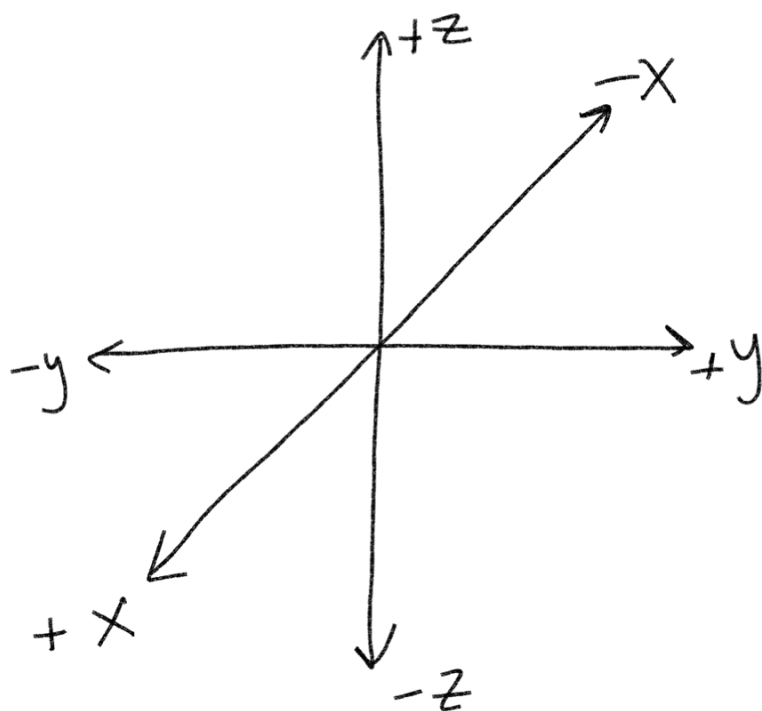
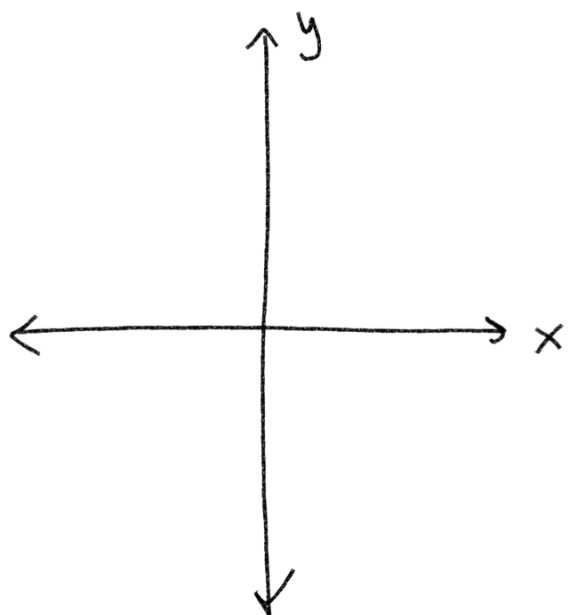
(8,0)

$$350,000(8) + 2(0) = \boxed{\$2,800,000}$$

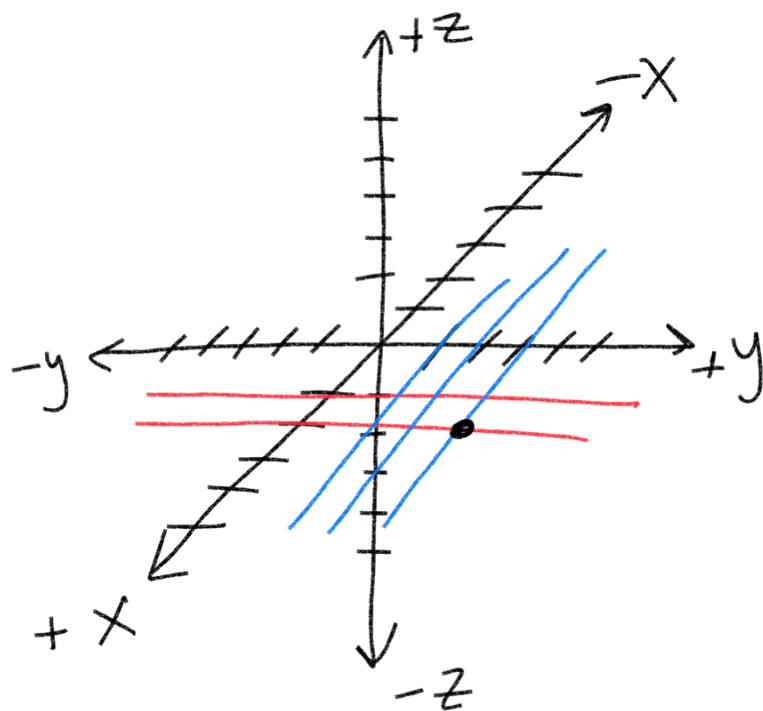
($\frac{20}{3}, \frac{4}{3}$)

$$350,000(\frac{20}{3}) + 2(\frac{4}{3}) = 2,333,333.33 + \$2.67$$

$$\$2,333,336$$



$(2, 3, -4)$
 $+x, +y, -z$



$$\textcircled{1} -4x - 3y + 3z = 8$$

$$\textcircled{2} -x + y + 2z = 0$$

$$\textcircled{3} -2x + 4y - z = 17$$

$$\textcircled{2} \begin{array}{l} -2 \\ \downarrow \end{array} (-x + y + 2z = 0)$$

$$\textcircled{3} \begin{array}{l} -2 \\ \downarrow \end{array} (-2x + 4y - z = 17)$$

$$\textcircled{1} -4x - 3y + 3z = 8$$

$$\textcircled{2} -4(-x + y + 2z = 0)$$

$$\begin{array}{r} -4x - 3y + 3z = 8 \\ + 4x - 4y - 8z = 0 \\ \hline \end{array}$$

$$\textcircled{4} \boxed{-7y - 5z = 8}$$

$$\begin{array}{r} 2x - 2y - 4z = 0 \\ -2x + 4y - z = 17 \\ \hline \end{array}$$

$$\textcircled{5} \boxed{2y - 5z = 17}$$

$$\textcircled{4} \begin{array}{l} -1 \\ \downarrow \end{array} (-7y - 5z = 8)$$

$$7y + 5z = -8$$

$$\textcircled{5} \begin{array}{r} 2y - 5z = 17 \\ + 7y + 5z = -8 \\ \hline \end{array}$$

$$9y = 9$$

$$\textcircled{5} 2y - 5z = 17$$

$$2(1) - 5z = 17$$

$$\begin{array}{r} 2 - 5z = 17 \\ -2 \quad \quad -2 \\ \hline \end{array}$$

$$\begin{array}{r} -5z = 15 \\ \frac{-5z}{-5} = \frac{15}{-5} \end{array}$$

$$\boxed{z = -3}$$

$$\begin{array}{c} x \ y \ z \\ \boxed{(-5, 1, -3)} \end{array}$$

$$\boxed{y = 1}$$

$$\textcircled{2} -x + y + 2z = 0$$

$$-x + 1 + 2(-3) = 0 \quad \boxed{x = -5}$$

$$\begin{array}{r} -x + 1 - 6 = 0 \\ -x - 5 = 0 \quad \frac{-x}{-1} = \frac{5}{-1} \end{array}$$

