M-A2 Algebra 2 Week 19 2/12

x = triangles y = ponchos

1.) Graph each

## Restrictions

$x + y \le 8$

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

$x \ge 0$
$y \ge 0$ } Graph is in Quad I

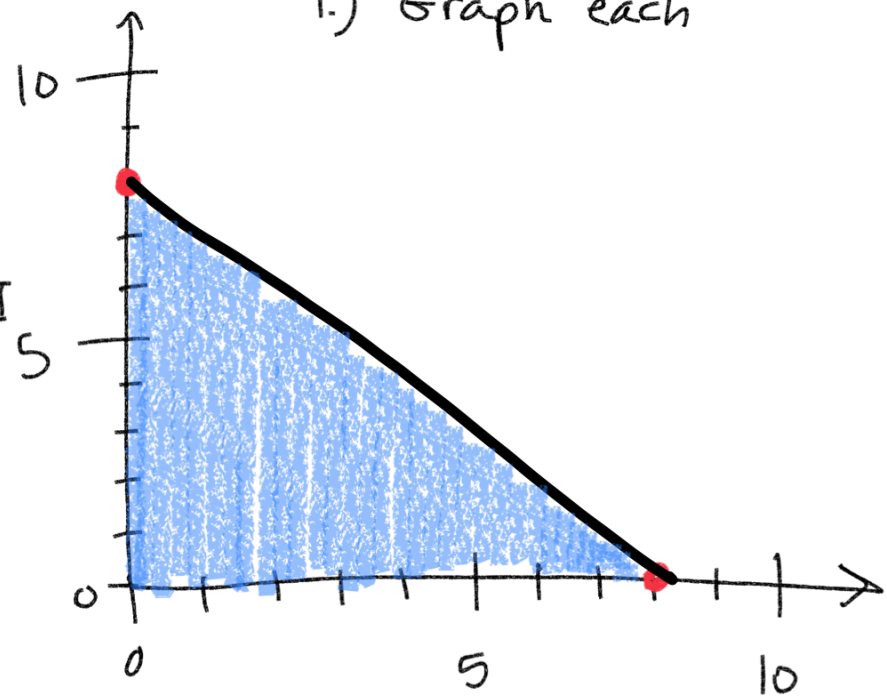
$\$6x + \$10y = P$

$\cancel{x} + y = 8$

$x = 0$ $y = 8$ $(0, 8)$

$x + \cancel{y} = 8$

$x = 8$ $y = 0$ $(8, 0)$

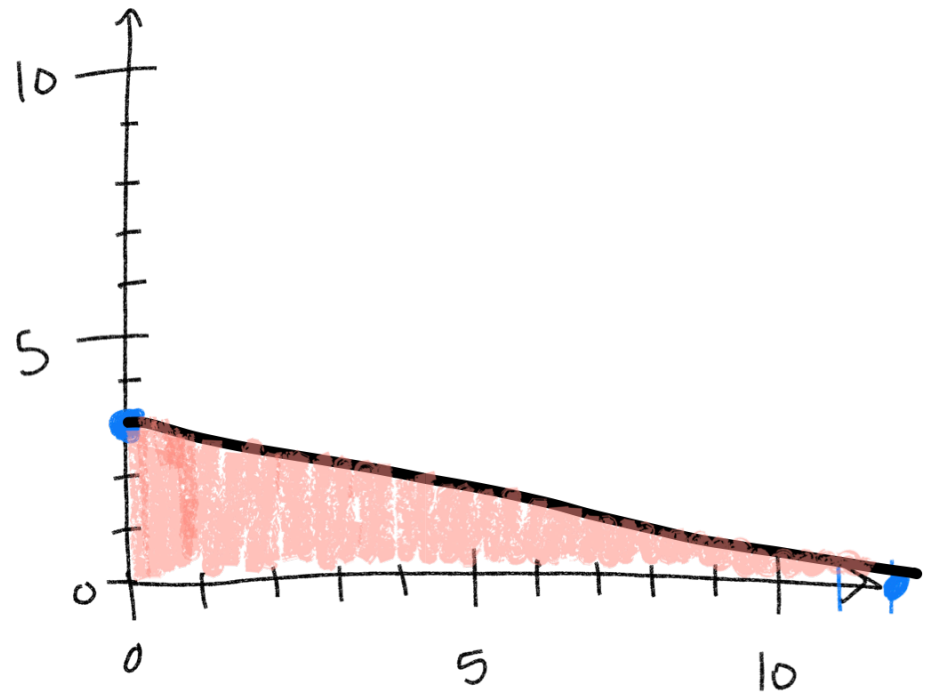



$\$\cancel{2}x + \$8y \le 24$

$x = 0$ $y = 3$ $(0, 3)$

$\$2x + \cancel{\$8}y \le 24$

$x = 12$ $y = 0$

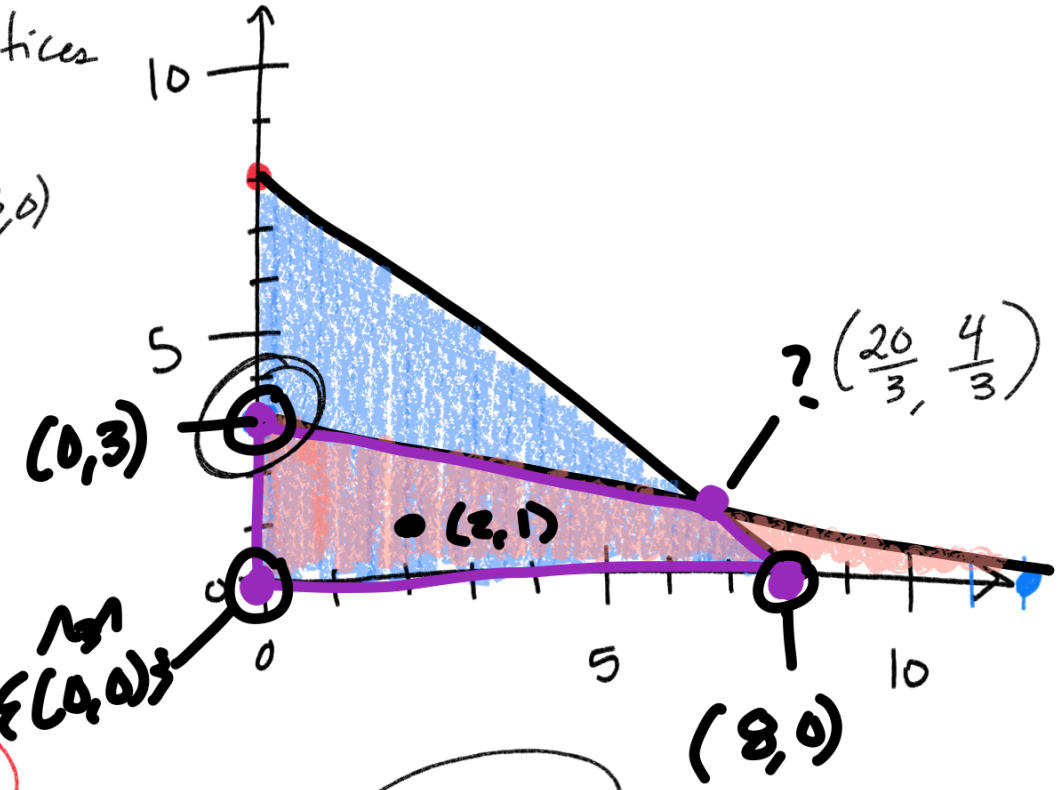


2.) Find the vertices

{(0,0)}, (0,3), (8,0)

<u>Floater</u>

substitution or elimination




$$-2(x + y = 8)$$

$$2x + 8y = 24$$

$$-2x - 2y = -16$$

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

$$\frac{6y}{6} = \frac{8}{6}$$

$$\boxed{y = \frac{4}{3}}$$

$$x + y = 8$$

$$x + \frac{4}{3} = 8$$

$$x + \frac{4}{3} = \frac{24}{8}$$

$$-\frac{4}{3} \quad -\frac{4}{3}$$

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

3.) Plug into Profit Equation

$$\$6x + \$10y = P$$

{(0,0)} $\$6(0) + \$10(0) = 0$

$\boxed{(0,3)}$ $\$6(0) + \$10(3) = \$30$

(8,0) $\$6(8) + \$10(0) = \$48$

$\left(\frac{20}{3}, \frac{4}{3}\right)$ $\$\cancel{6}^{2}\left(\frac{20}{\cancel{3}}\right) + \$10\left(\frac{4}{3}\right) =$

$\$40 + \$40/3 = \$40 + \$13.33 = \boxed{\$53.33}$

## Restrictions

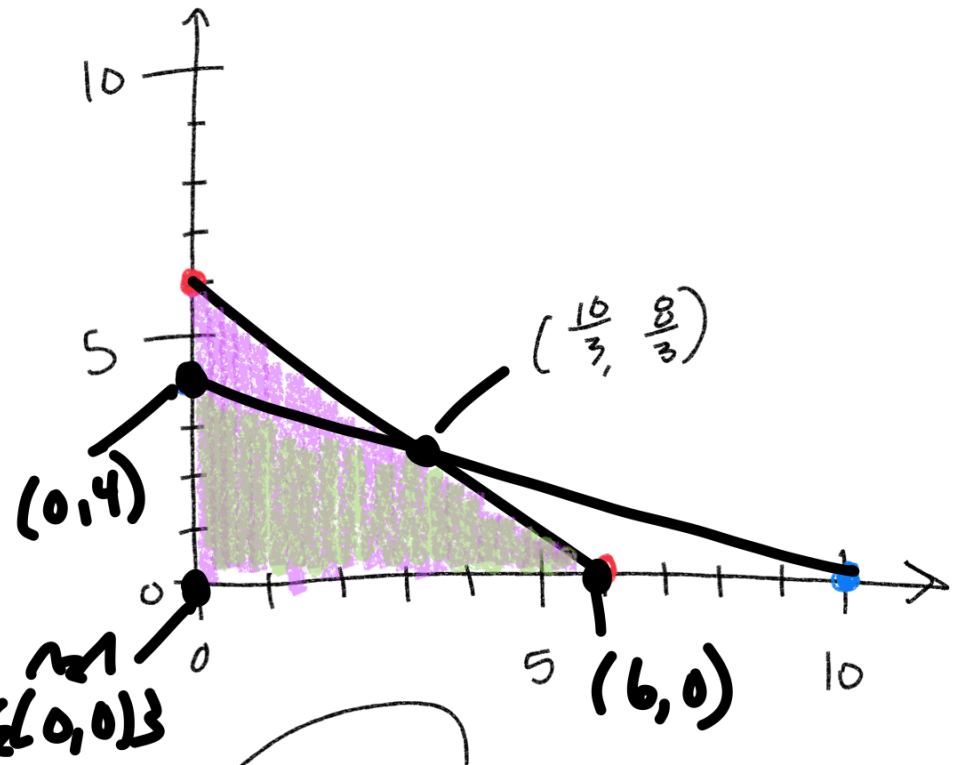
$\boxed{x + y \le 6}$

$\$4x + \$10y \le 40$

$x \ge 0$

$y \ge 0$

$\$5x + \$8y = P$




$-4(x + y = 6)$

$4x + 10y = 40$

$-4x - 4y = -24$

$+\ 4x + 10y = 40$

$\frac{6y}{6} = \frac{16}{6}$

$y = \frac{8}{3}$

$x + y = 6$

$x + \frac{8}{3} = 6$

$x + \frac{8}{3} = \frac{18}{3}$

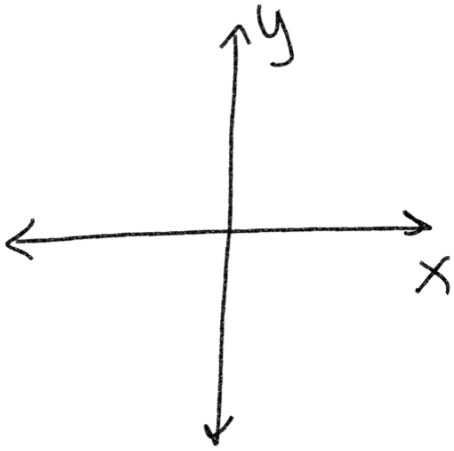
$-\frac{8}{3} \quad -\frac{8}{3}$

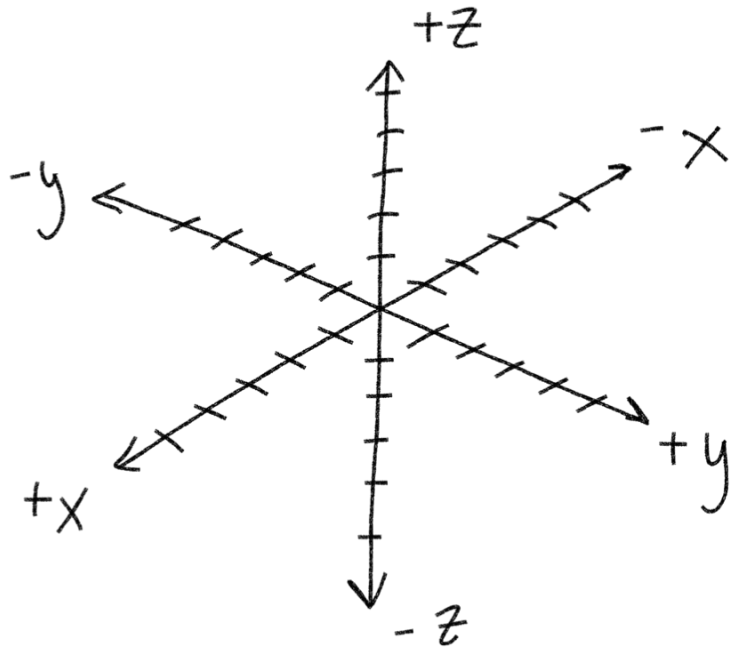
$x = 10/3$

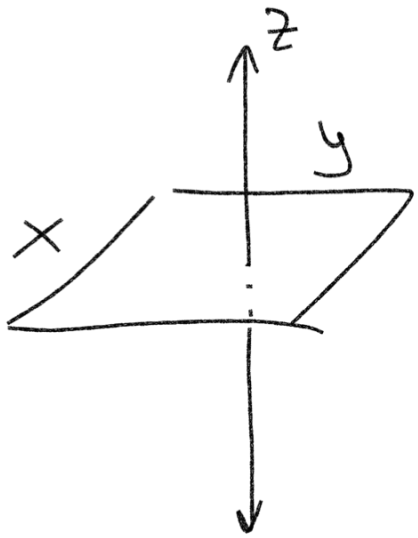
$\$5x + \$8y = P$

| | |
|---|---|
| $\{(0,0)\}$ | $\$5(0) + \$8(0) = \$0$ |
| $(0,4)$ | $\$5(0) + \$8(4) = \$32$ |
| $(6,0)$ | $\$5(6) + \$8(0) = \$30$ |
| $\boxed{(\frac{10}{3}, \frac{8}{3})}$ | $\$5(\frac{10}{3}) + \$8(\frac{8}{3}) = \frac{50}{3} + \frac{64}{3} = \$16.66 + \$21.33$ |

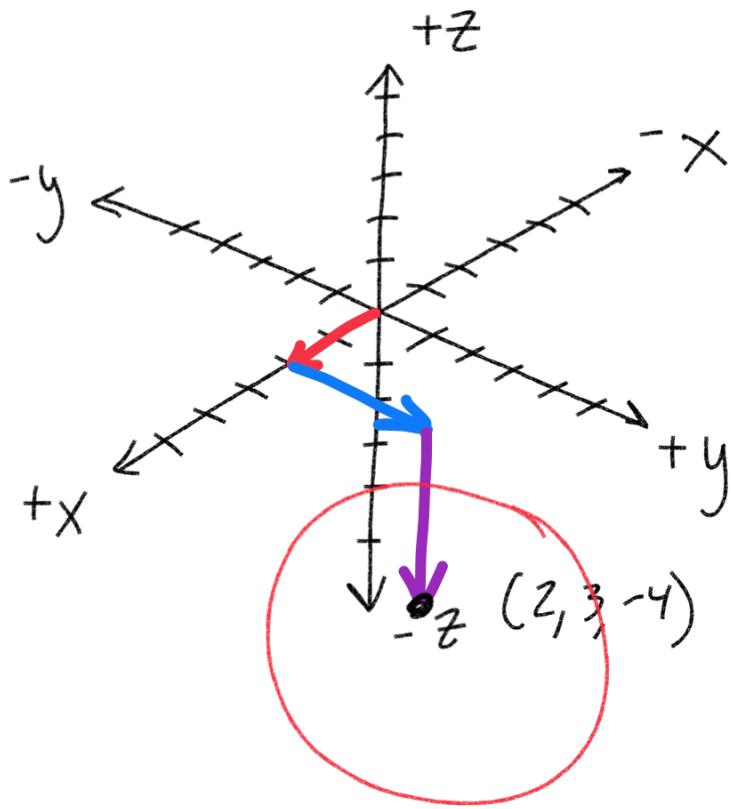
$\boxed{\$38}$




| x | y | z |
|---|---|---|
| 2 | 3 | -4 |



① $-4x - 3y + 3z = 8$

② $-x + y + 2z = 0$

③ $-2x + 4y - z = 17$

1.) Eliminate "x" twice

① $-4x - 3y + 3z = 8$

② $-4(-x + y + 2z = 0)$

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

④ $-7y - 5z = 8$

② $(-x + y + 2z = 0)$

③ $-2x + 4y - z = 17$

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

⑤ $2y - 5z = 17$

④ $-7y - 5z = 8$

⑤ $-1(2y - 5z = 17)$

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

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

Bottom of hob $\boxed{y = 1}$

4/5

⑤ $2y - 5z = 17$

$2(1) - 5z = 17$

$2 - 5z = 17$

$-2 \qquad -2$

$\frac{-5z}{-5} = \frac{15}{-5}$

$\boxed{z = -3}$

1/2/3

② $-x + y + 2z = 0$

$-x + 1 + 2(-3) = 0$

$-x + 1 - 6 = 0$

$-x - 5 = 0$

$+x \qquad +x$

$\boxed{-5 = x}$

$\boxed{(-5, 1, -3)}$

$$\begin{array}{ccc} x & y & z \\ \end{array}$$
$$\begin{pmatrix} -5, & 1, & -3 \end{pmatrix}$$