W-A2 Algebra 2 Week 18 1/24

1.) $\boxed{2x + 3y < 12}$

$\boxed{y > \frac{1}{2}x - 3}$

y-int

slope $\frac{\text{up } 1}{\text{2 right}}$

Graph in Standard Form

$\cancel{2x} + \frac{3y}{3} = \frac{12}{3}$ y-int

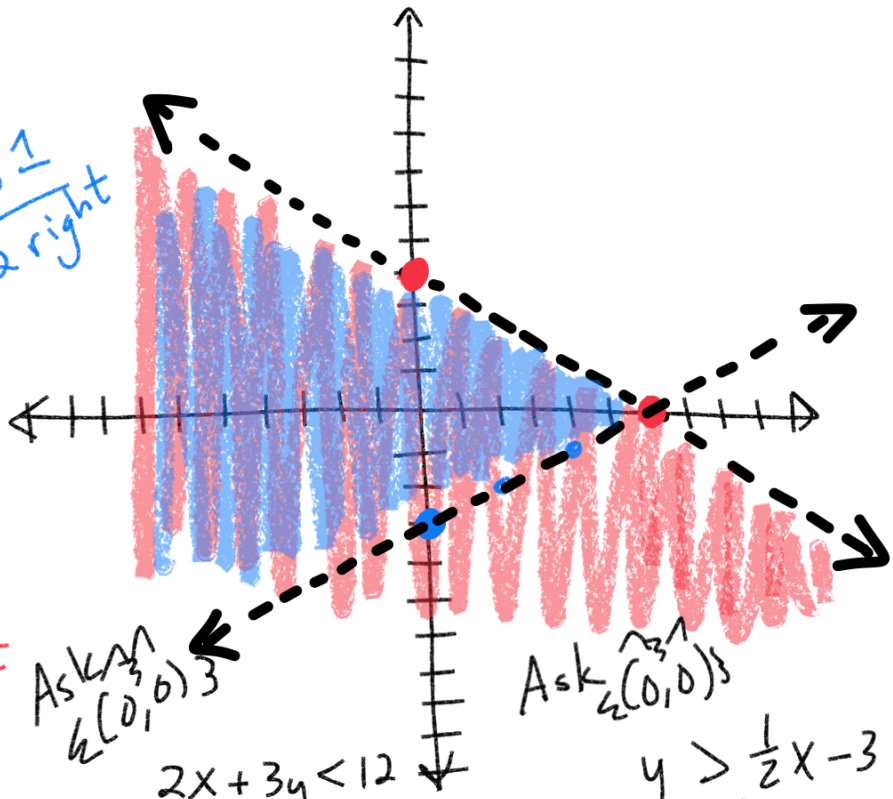
$x = 0$ $(0,4)$

$y = 4$

$\frac{2x}{2} + \cancel{3y} = \frac{12}{2}$ x-int

$y = 0$ $(6,0)$

$x = 6$



Ask $\{(0,0)\}$

$2x + 3y < 12$

$2(0) + 3(0) < 12$

$0 < 12$ true

Ask $\{(0,0)\}$

$y > \frac{1}{2}x - 3$

$0 > \frac{1}{2}(0) - 3$

$0 > -3$ true!

2.) $\boxed{4x - 6y < 12}$

$\boxed{y \geq -2}$

$\{(0,0)\}$

$4x - 6y < 12$

$4(0) - 6(0) < 12$

$0 < 12$

true!

$4x - 6y < 12$

$-4x \qquad -4x$

$\frac{-6y}{-6} < \frac{-4x}{-6} + \frac{12}{-6}$

$y > \frac{2}{3}x \boxed{-2}$

slope $\frac{\text{up } 2}{\text{3 right}}$

y-int

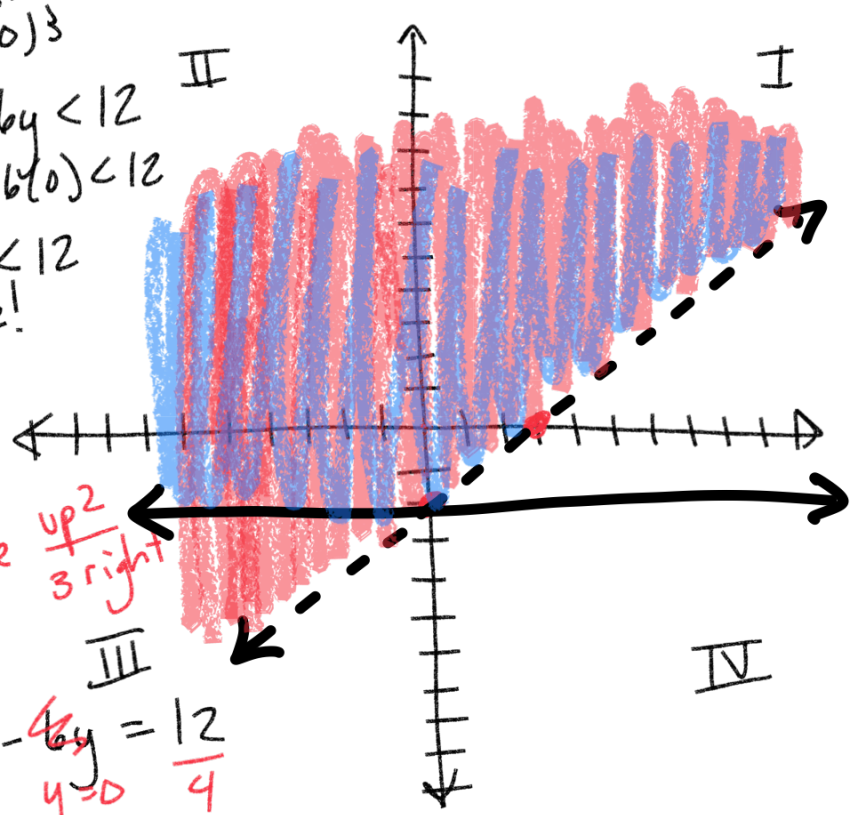
$\cancel{4x} - \frac{6y}{-6} = \frac{12}{-6}$

$x = 0$ $y = -2$ $(0,-2)$

$\frac{4x}{4} - \cancel{6y} = \frac{12}{4}$

$y = 0$

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



Restrictions

x: Cupped Cakes y: Caked Cups

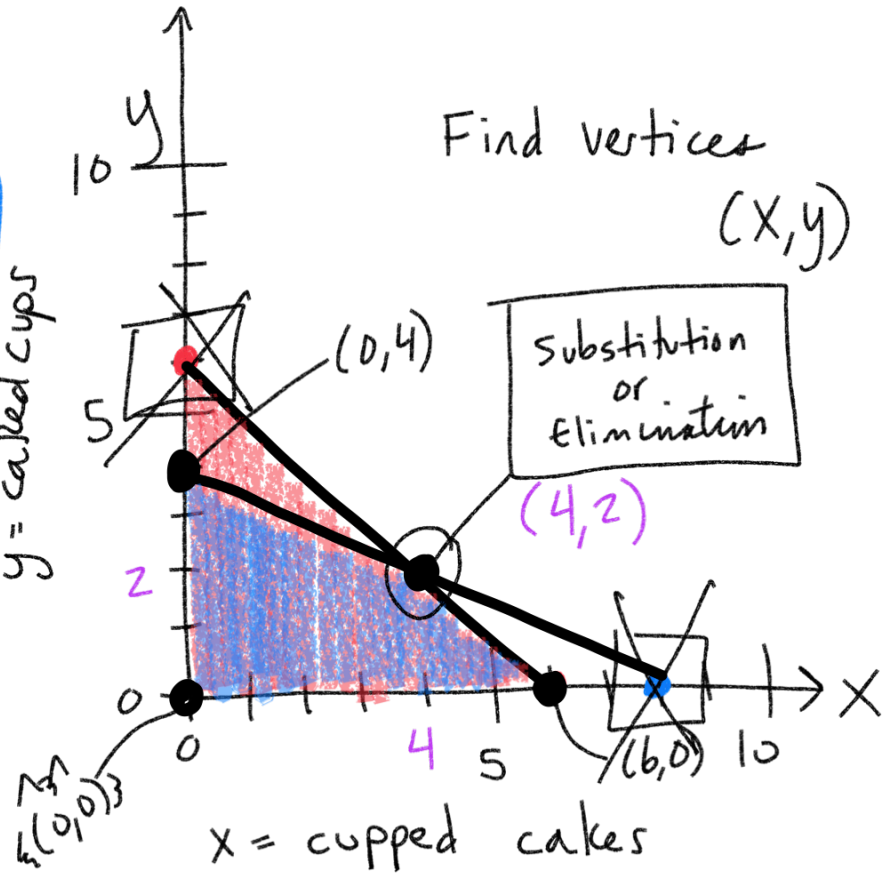
$$\boxed{x + y \le 6}$$

$$\boxed{\$3x + \$6y \le \$24}$$

$$\boxed{\begin{array}{l} x \ge 0 \\ y \ge 0 \end{array}}$$

Graph in Quad I

$$[\![\$8x + \$9y = P]\!]$$



Find vertices (x,y)

Substitution or Elimination

$\cancel{x} + y = 6$

$x=0$ $y=6$ $(0,6)$

$x + \cancel{y} = 6$

$y=0$ $x=6$ $(6,0)$

$\cancel{3}x + \frac{6y}{6} = \frac{24}{6}$

$x=0$ $y=4$ $(0,4)$

$\frac{3x}{3} + \cancel{6}y = \frac{24}{3}$

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

$$x + y = 6$$
$$3x + 6y = 24$$

$$x + y = 6$$
$$-y \quad -y$$
$$x = \boxed{6 - y}$$

$$3(6-y) + 6y = 24$$

$$18 - 3y + 6y = 24$$

$$18 + 3y = 24$$
$$-18 \quad -18$$

$$\frac{3y}{3} = \frac{6}{3}$$

$$y = 2$$

$$x = 6 - 2$$

$$\boxed{x = 4}$$

$\$8x + \$9y = P$ Each scenario

$(0,0)$: $\$8(0) + \$9(0) = \boxed{\$0}$

$(0,4)$ $\$8(0) + \$9(4) = \boxed{\$36}$

$(6,0)$ $\$8(6) + \$9(0) = \boxed{\$48}$

$(4,2)$ $\$8(4) + \$9(2)$

$\$32 + \$18 = \boxed{\$50}$

$x = 4$ cupped cakes

$y = 2$ caked cups

Restrictions

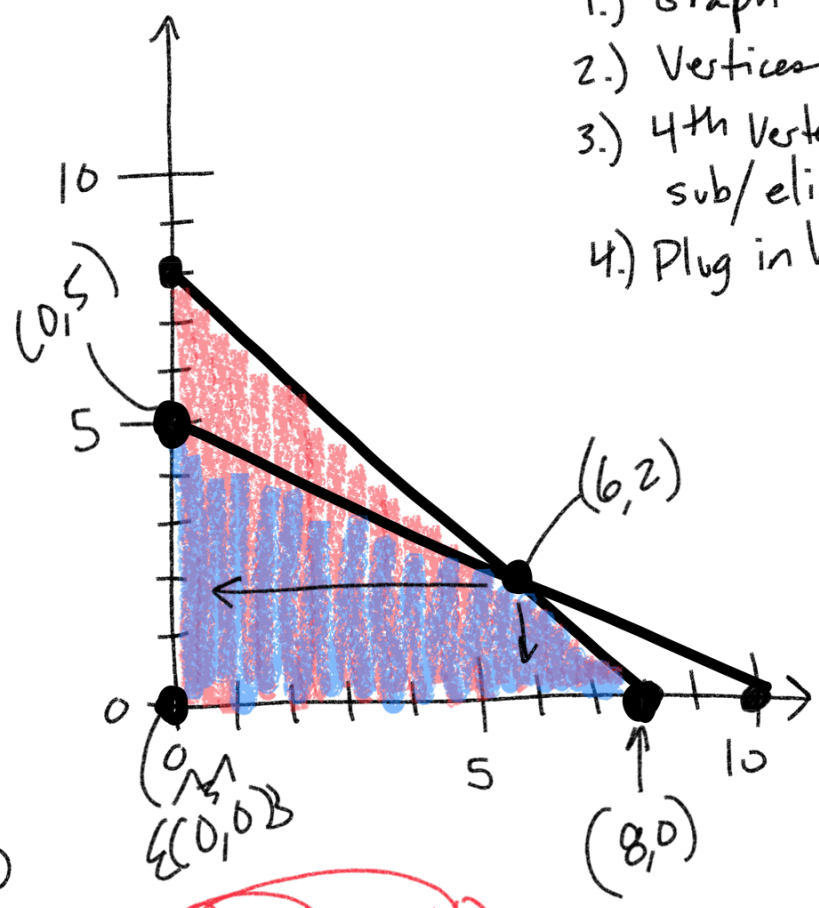
$$\begin{cases} x + y \le 8 \\ \$6x + \$12y \le \$60 \end{cases}$$

$x \ge 0$

$y \ge 0$

$\$40x + \$56y = P$

1.) Graph
2.) Vertices
3.) 4th Vertex sub/elim
4.) Plug in Verts



$\cancel{\$6x} + \$12y \le \$60$

$y = 5$

$\$6x + \cancel{\$12} \le 60$

$x = 10$

$-6(x + y = 8)$

$6x + 12y = 60$

$-\cancel{6x} - 6y = -48$

$+ \cancel{6x} + 12y = 60$

$\frac{6y}{6} = \frac{12}{6}$

$y = 2$

$x + y = 8$

$x + 2 = 8$

$-2 \quad -2$

$x = 6$

(0,0) (0,5) (8,0) (6,2)

$40x + 56y = P$

(0,0): $40(0) + 56(0) = 0$

(0,5) $40(0) + 56(5) = \$280$

(8,0) $40(8) + 56(0) = \$320$

(6,2) $40(6) + 56(2)$

$240 + 112 = \$352$

$\boxed{(6,2) = \$352}$