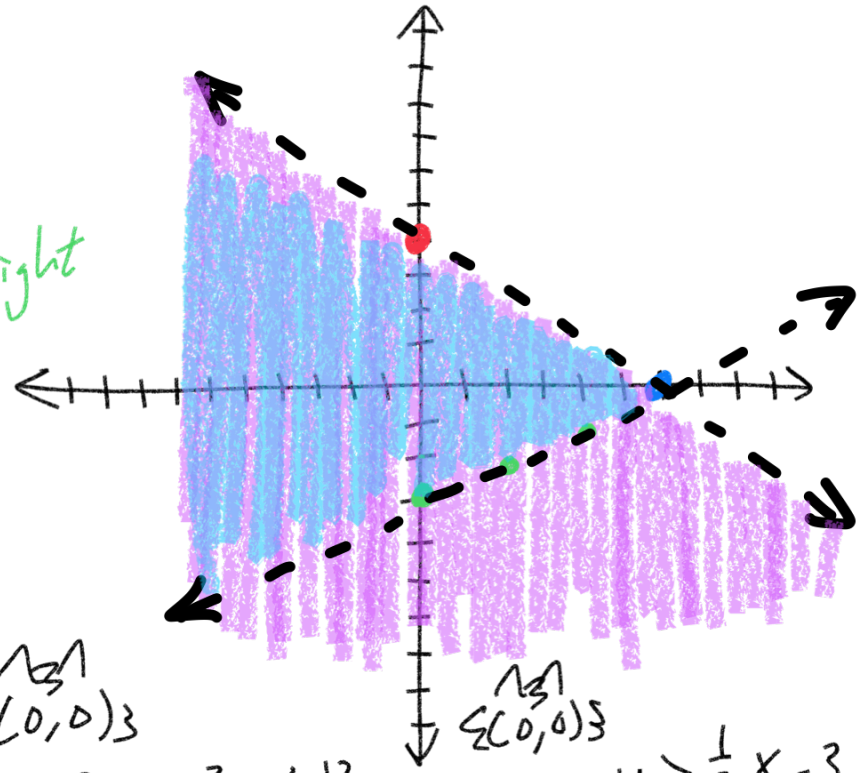
M-A2 Algebra 2 Week 18 2/5

1.) $2x + 3y < 12$

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

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

Graph in standard form



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

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

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

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

$\{(0,0)\}$

$2x + 3y < 12$

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

$0 < 12$ true

$\{(0,0)\}$

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

$0 > \frac{1}{2}(6) - 3$

$0 > -3$

true

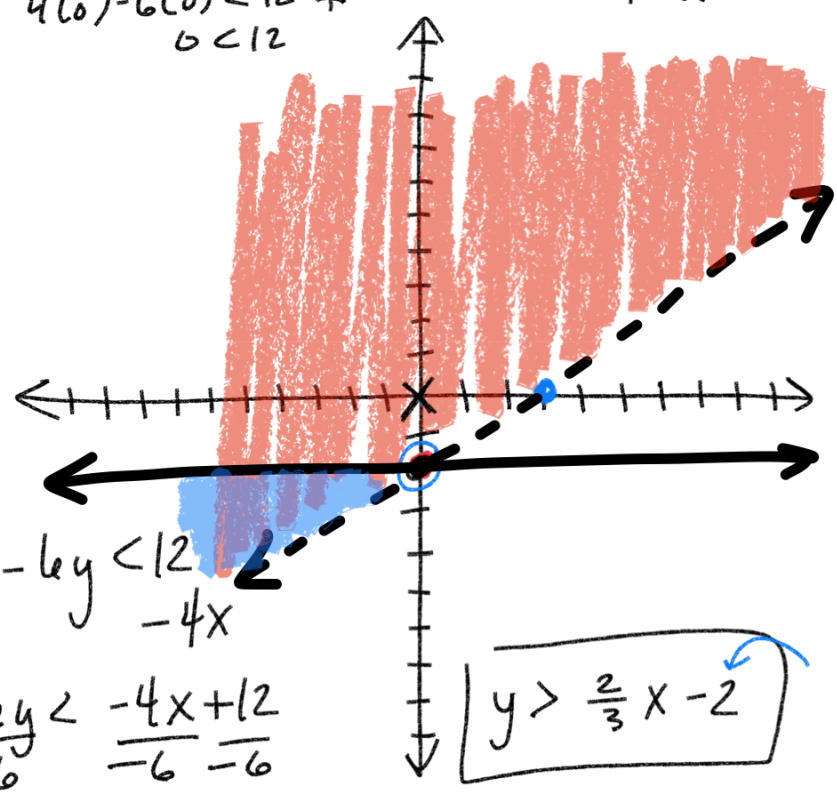
2.) $4x - 6y < 12$

$y \leq -2$

$\{(0,0)\}$

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

$0 < 12$



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

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

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

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

$4x - 6y < 12$

$-4x \quad -4x$

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

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

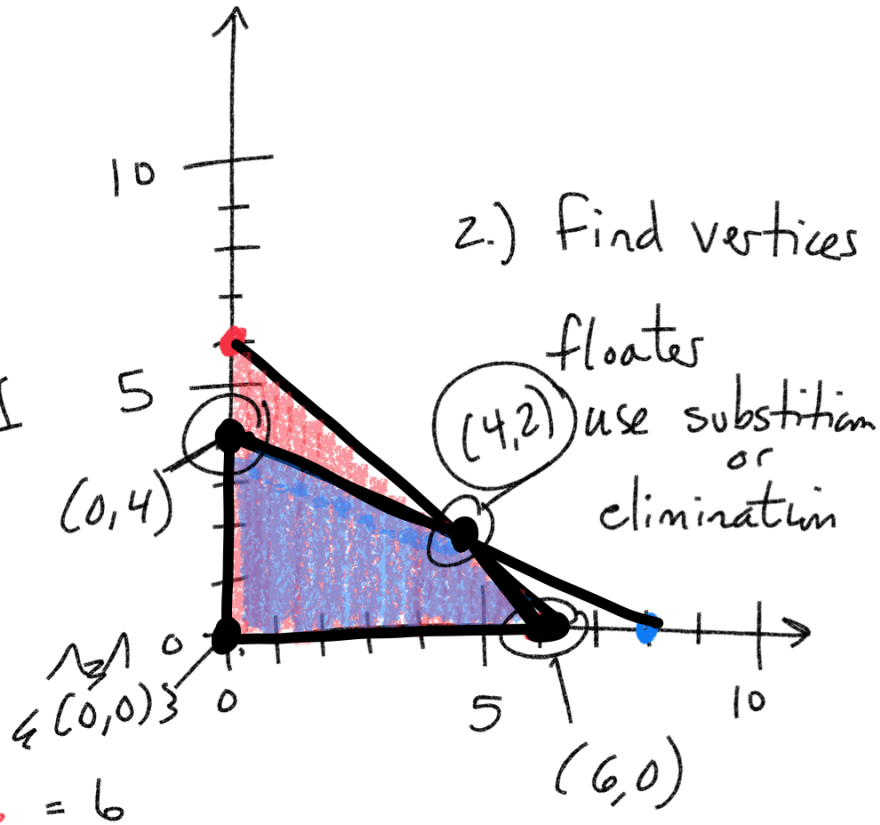
Restrictions

x: Cupped Cakes y: Caked Cups

$$\begin{cases} x + y \le 6 \\ \$3x + \$6y \le \$24 \end{cases}$$

$$\left.\begin{array}{l} x \ge 0 \\ y \ge 0 \end{array}\right\} \text{Graph in Quad I}$$

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



2.) Find vertices

floater use substitution or elimination

1.) Graph

$\cancel{x} + y = 6$ $\quad$ $x + \cancel{y} = 6$

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

$$\begin{cases} \$3x + \cancel{\$6y} = 24 \\ \cancel{\$3x} + \$6y = 24 \end{cases}$$

$\frac{3x}{3} = \frac{24}{3}$ $\quad$ $\frac{6y}{6} = \frac{24}{6}$

$x = 8$ $\quad y = 0$ $\quad (8,0)$ $\quad x = 0$ $\quad y = 4$ $\quad (0,4)$

2.) Find Floater Vertex (Elimination)

$-3(x + y = 6)$ $\quad$ $-3x - 3y = -18$

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

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

$y = 2$

$x + y = 6$

$x + 2 = 6$

$-2 \quad -2$

$x = 4$

$(4,2)$

3.) Find the Profit

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

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

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

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

$(4,2)$ $\$8(4) + \$9(2) = \boxed{\$50}$

$\$32 + \$18$

Restrictions

$x + y \le 8$

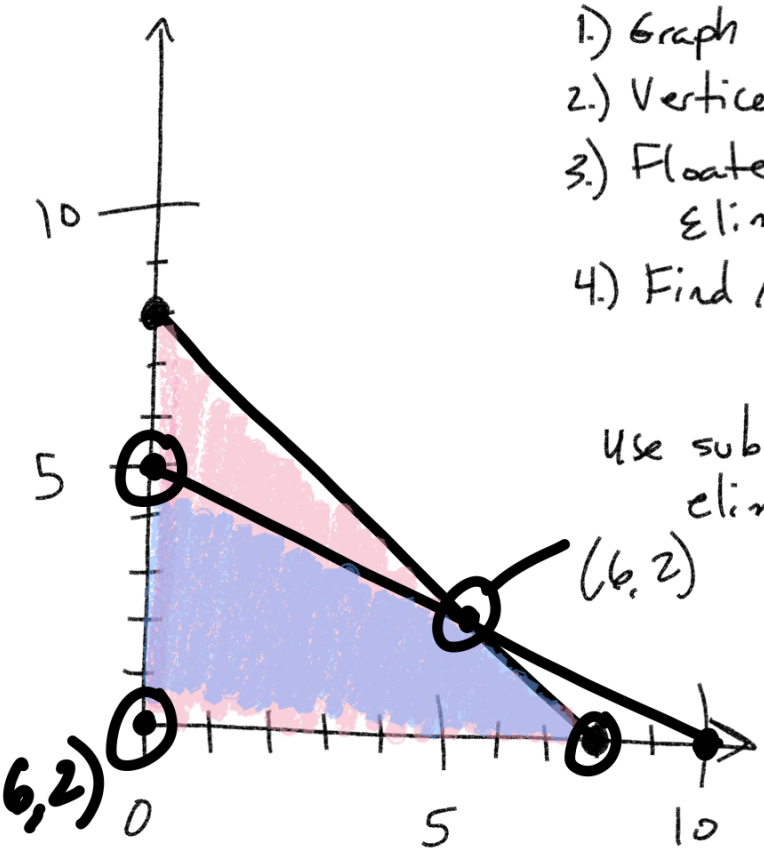
$\$6x + \$12y \le \$60$

$x \ge 0$

$y \ge 0$

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

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



1.) Graph
2.) Vertices
3.) Floater
Eliminate
4.) Find Max

Use sub or eliminat

$-6(x + y = 8)$

$6x + 12y = 60$

$-6x - 6y = -48$

$+ \; 6x + 12y = 60$

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

$y = 2$

$x + y = 8$

$x + 2 = 8$

$-2 \quad -2$

$x = 6$

$40x + 56y = P$

$(0,0) \quad 40(0) + 56(0) = \$0$

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

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

$(6,2) \quad 40(6) + 56(2) = \boxed{\$352}$

$240 + 112$

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