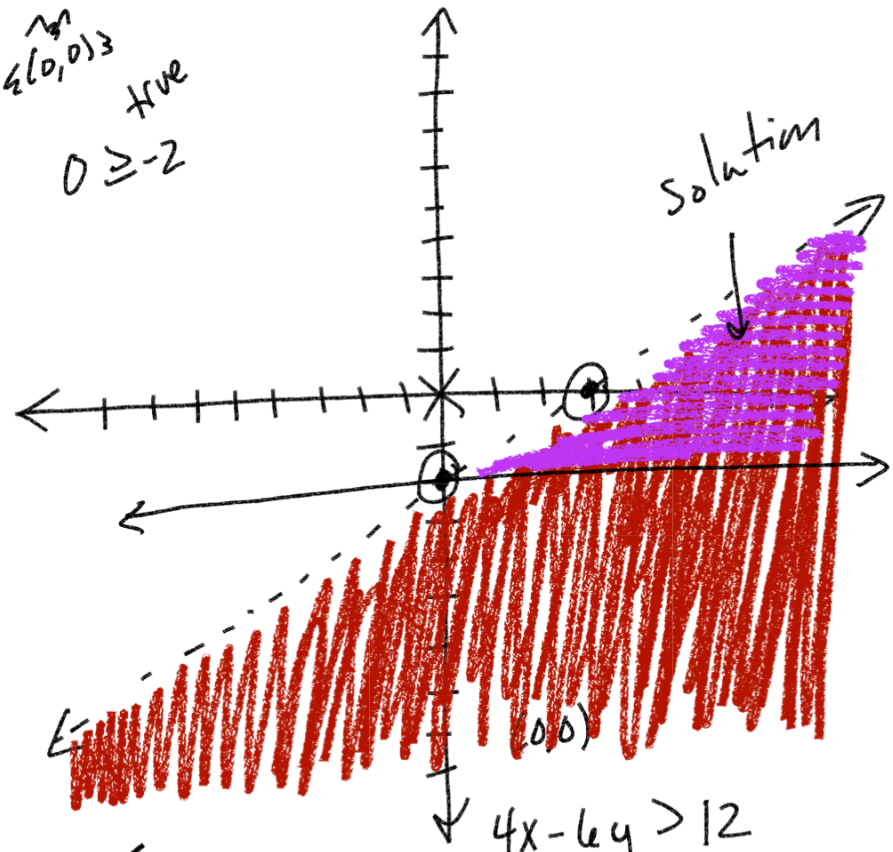
S-A2 Algebra 2 Session 14 7/20

$4x - 6y > 12$

$y \geq -2$ horizontal line

(0,0) $0 \geq -2$ true



$4x - 6y > 12$

$-4x \quad -4x$

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

$y < \frac{2}{3}x - 2$

$\frac{-6y}{-6} > \frac{12}{-6}$

$y = -2$

$\frac{4x}{4} > \frac{12}{4}$

$x = 3$

$4x - 6y > 12$

$0 - 0 > 12$

$0 > 12$

false

$2x + 3y < 12$

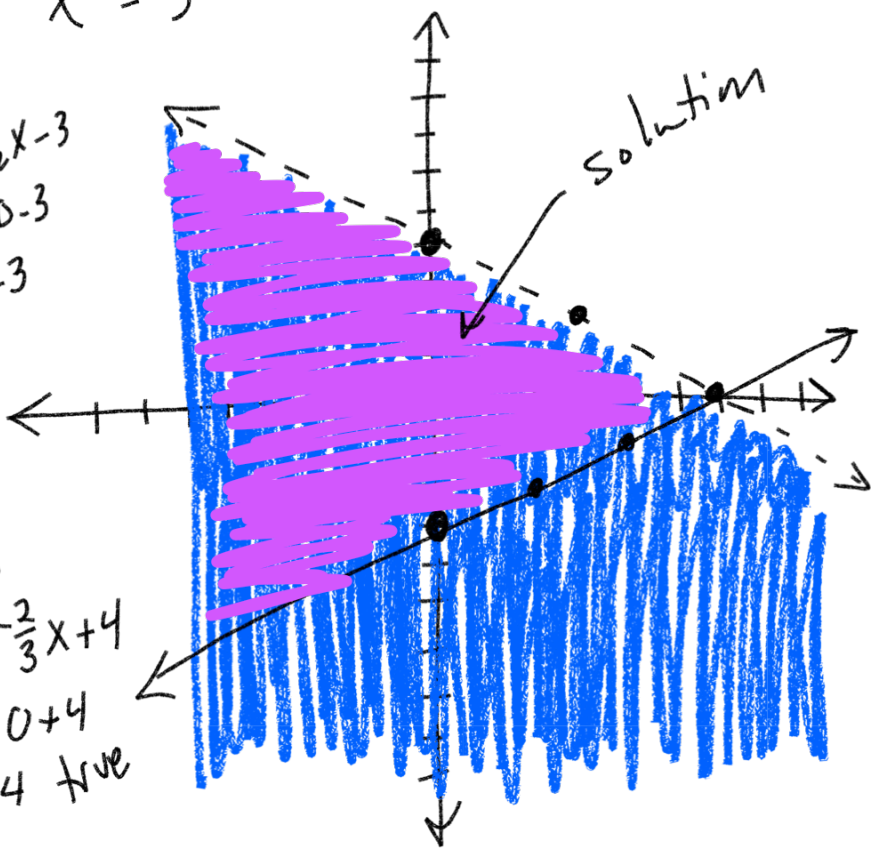
$y \geq \frac{1}{2}x - 3$

(0,0) $y \geq \frac{1}{2}x - 3$

$0 \geq 0 - 3$

$0 \geq -3$

true



$2x + 3y < 12$

$-2x \quad -2x$

$\frac{3y}{3} < \frac{-2x}{3} + \frac{12}{3}$

$y < -\frac{2}{3}x + 4$

(0,0) $y < -\frac{2}{3}x + 4$

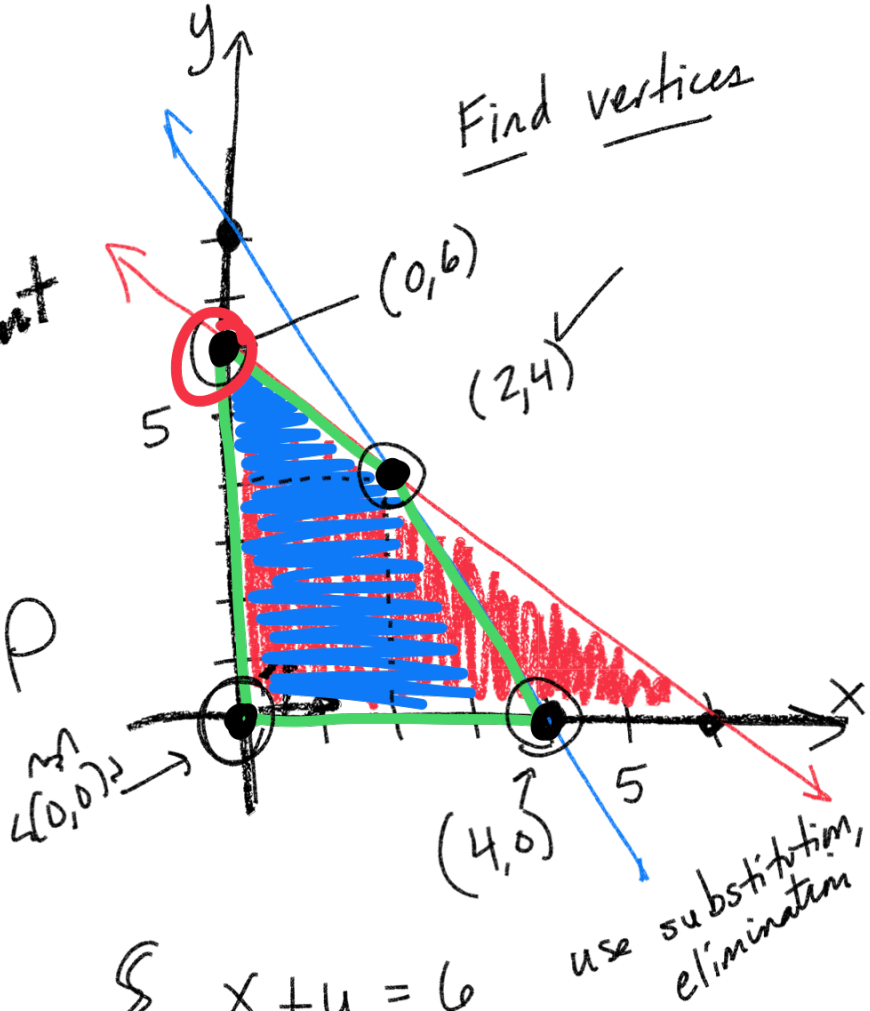
$0 < 0 + 4$

$0 < 4$ true

Restrictions Brownies: x Cookies: y

$$\begin{cases} x + y \le 6 \\ \$6x + \$3y \le \$24 \\ x \ge 0 \\ y \ge 0 \end{cases}$$

Quadrant 1



Find vertices

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

1.) Graph
2.) Find all vertices
3.) Plug in vertices

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

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

(0,6) $\$8(0) + \$9(6) = \boxed{\$54}$

(4,0) $\$8(4) + \$9(0) = \boxed{\$32}$

(2,4) $\$8(2) + \$9(4) = \boxed{\$52}$

use substitution, elimination

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

$-6(x + y = 6)$

$6x + 3y = 24$

$-6x - 6y = -36$

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

$-3y = -12$

$\frac{-3y}{-3} = \frac{-12}{-3}$

$\boxed{y = 4}$

$x + y = 6$

$x + 4 = 6$

$-4 \quad -4$

$\boxed{x = 2}$

Restrictions

$x + y \leq 8$

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

Quad I

$x \geq 0$

$y \geq 0$

1.) Graph ✓

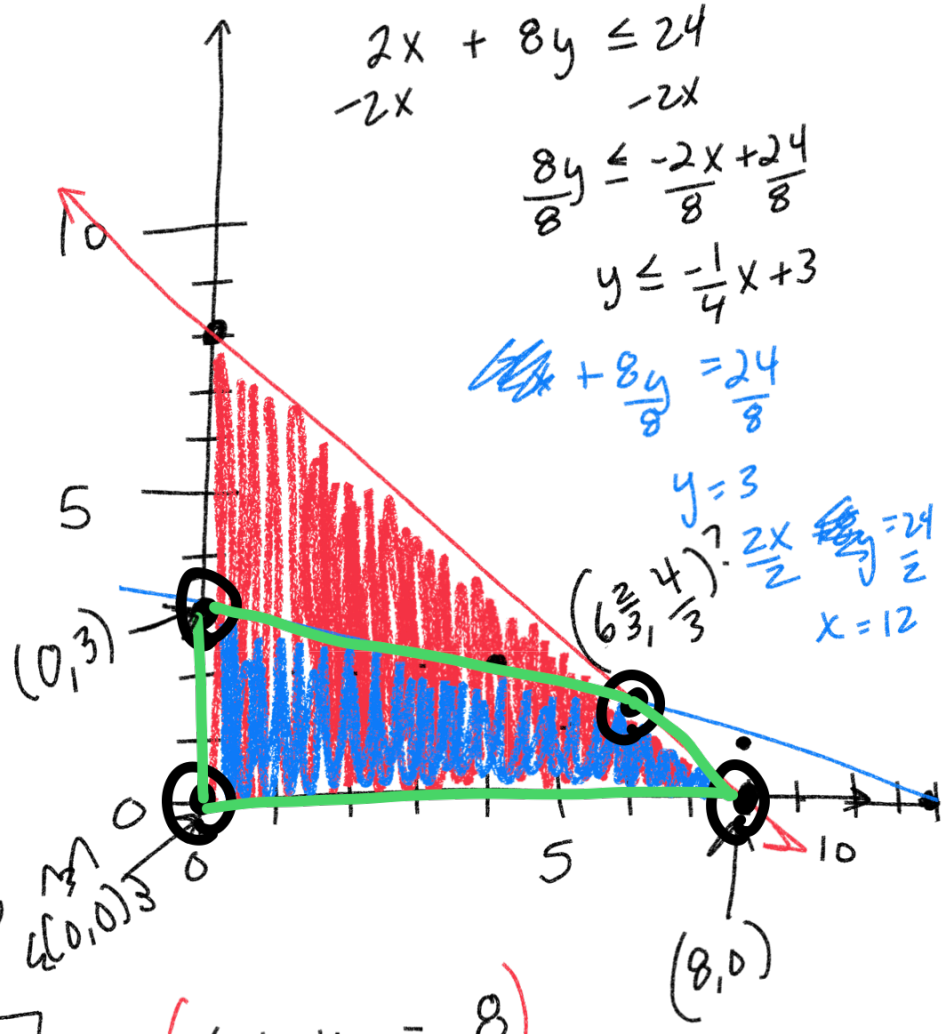
2.) Find vertices

3.) Max Profit

$P = \$4x + \$12y$

x = Rice Crispy Treats

y = PB Max bars



$2x + 8y \leq 24$

$-2x \quad -2x$

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

$y \leq -\frac{1}{4}x + 3$

$+8y = 24$

$\frac{8y}{8} = \frac{24}{8}$

$y = 3$

$\frac{2x}{2} = \frac{24}{2}$

$x = 12$

$(0,0) = \$4(0) + \$12(0) = 0$

$(0,3) = \$4(0) + \$12(3) = \boxed{36}$

36

$(6\frac{2}{3}, \frac{4}{3})$ $\$4(\frac{20}{3}) + \$12(\frac{4}{3}) = \boxed{\$42.67}$

$\frac{20}{3}$ $\frac{4}{3}$

$\$26.67 + \$16$

$(8,0)$ $\$4(8) + \$12(0) = \boxed{\$32}$

32

$-2(x + y = 8)$

$2x + 8y = 24$

$-2x - 2y = -16$

$2x + 8y = 24$

$6y = 8$

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

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

$x + y = 8$

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

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

$x = \frac{20}{3} = 6\frac{2}{3}$

$$-4x - 3y + 3z = 8$$
$$-x + y + 2z = 0$$
$$-2x + 4y - z = 17$$