

key



### Graphing Systems

Graph the system and find the solution

$$y = 2x + 7$$

$$12x + 3y = -15$$

$$\frac{3y}{3} = \frac{-12x - 15}{3}$$

$$y = -4x - 5$$



### Solving Systems by Elimination

$$2x - y = -11$$

$$y = -2x - 13$$

$$2x + y = -13$$

$$2x - y = -11$$

$$4x = -24$$

$$x = -6$$

$$(-6, -1)$$

$$y = -2(-6) - 13$$

$$y = 12 - 13$$

$$y = -1$$

Check your answer on your graphing calculator!

yep 😊

### Word Problems

You are running a lemonade stand on the corner. Children Large glasses cost \$2 and small glasses cost \$1.50. You sell 25 cups and collect \$40. How many small cups and how many large cups did you sell?

$$x = \text{large}$$

$$y = \text{small}$$

$$2x + 1.5y = 40$$

$$x + y = 25 \Rightarrow y = -x + 25$$

$$2x + 1.5(-x + 25) = 40$$

$$2x - 1.5x + 37.5 = 40$$

$$\frac{0.5x}{0.5} = \frac{2.5}{0.5}$$

$$x = 5$$

$$y = -5 + 25$$

$$y = 20$$

5 large  
20 small

### Solving Systems by Substitution

$$4x - 7y = 10$$

$$y = x - 2$$

$$4x - 7(x - 2) = 10$$

$$4x - 7x + 14 = 10$$

$$-3x = -4$$

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

$$y = \frac{4}{3} - 2$$

$$y = -\frac{2}{3}$$

$$\left(\frac{4}{3}, -\frac{2}{3}\right)$$

## Special Cases

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

$$y = 8x - 1$$

$$-16x + 2(8x - 1) = -2$$

$$-16x + 16x - 2 = -2$$

$$-2 = -2$$

all solutions

## Graphing Calculator

$$y = -4.2x + 3.2$$

$$y - 5.2x = -6.4$$

$$y = 5.2x - 6.4$$

$$(1.02, -1.09)$$

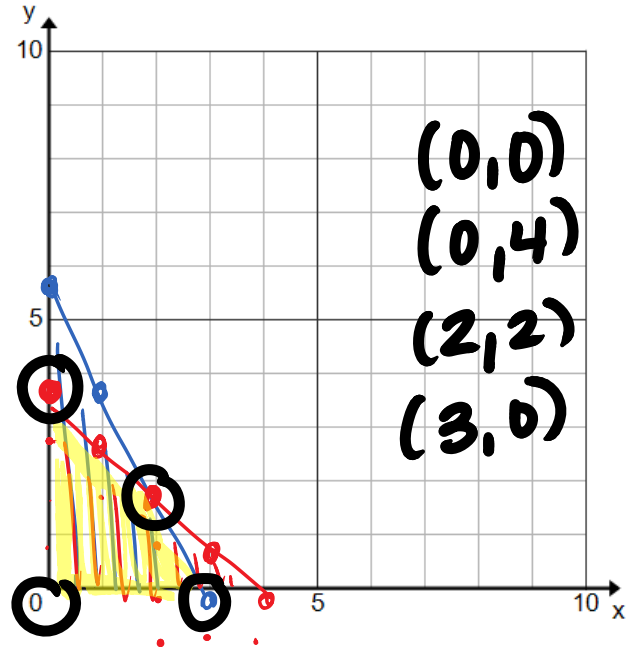
## Linear Programming

$$y > 0$$

$$x > 0$$

$$y < -2x + 6$$

$$y < -1x + 4$$



Now go back and study your notes, homework, class activities, etc.

## Linear Inequalities

$$y > -x - 2 \quad 0 > -2$$

$$y \leq 3x + 6 \quad 0 \leq 6$$

