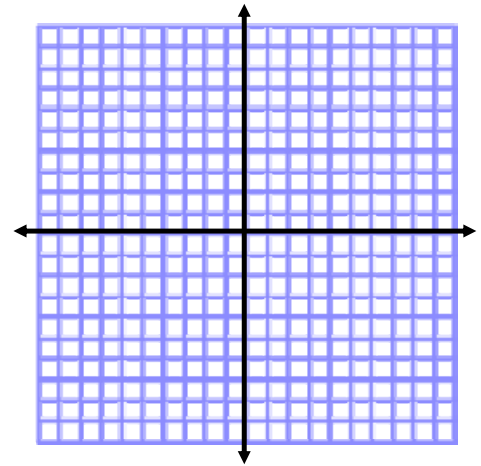


## Warm-up 11-20

**Solve by graphing.**

1. Jerry needs to determine how many donuts to buy for his company breakfast. He knows based off of past years that people typically eat two times as many chocolate donuts as regular. He also knows that he needs to feed 72 people (giving each person 2 donuts each). If he can buy donuts by the dozen, how many boxes of chocolate how many boxes of regular donuts should he get?



# Warm-up 11-20

**Solve by graphing.**

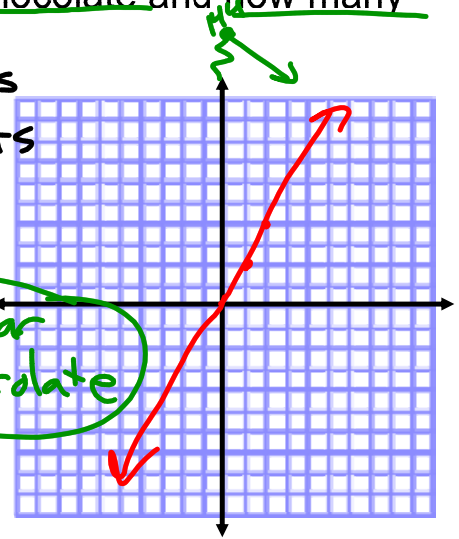
1. Jerry needs to determine how many donuts to buy for his company breakfast. He knows based off of past years that people typically eat two times as many chocolate donuts as regular. He also knows that he needs to feed 72 people (giving each person 2 donuts each). If he can buy donuts by the dozen, how many boxes of chocolate and how many boxes of regular donuts should he get?

$$2x = y \quad \begin{array}{l} x - \text{regular donuts} \\ y - \text{chocolate donuts} \end{array}$$

$$\begin{array}{r} x + y = 144 \\ -x \phantom{+ y} = \phantom{144} \\ \hline y = 144 - x \end{array}$$

(48, 96)

4 boxes of regular  
8 boxes of chocolate



## Warm-up 11-20

Solve by graphing.

1. Jerry needs to determine how many donuts to buy for his company breakfast. He knows based off of past years that people typically eat two times as many chocolate donuts as regular. He also knows that he needs to feed 72 people (giving each person 2 donuts each). If he can buy donuts by the dozen, how many boxes of chocolate and how many boxes of regular donuts should he get?

$$\underline{2x = y}$$

$$x + y = 144$$

$$x + 2x = 144$$

$$\frac{3x}{3} = \frac{144}{3}$$

$$x = 48$$

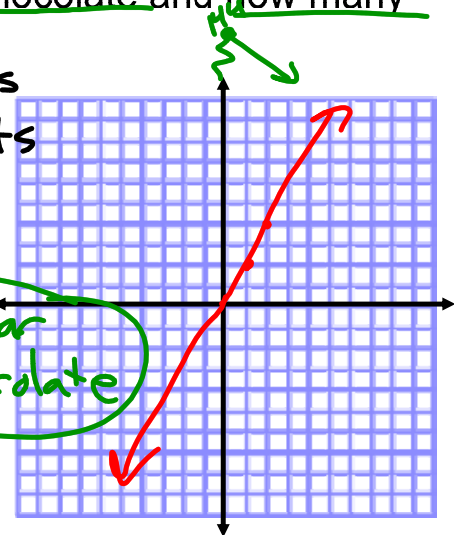
$$y = 2(48)$$

$$y = 96$$

x - regular donuts  
y - chocolate donuts

(48, 96)

4 boxes of regular  
8 boxes of chocolate



5.2

# Today's Goal

I can solve systems of equations  
by using substitution



Solve the following by substitution. Be sure to check your answers.

1.  $y = 2x$   
 $2x + y = -12$

2.  $2x + 5y = -7$   
 $3x + 2 = y$

3.  $x = y - 4.2$   
 $2x - 3y = -9$

Solve the following by substitution. Be sure to check your answers.

$$1. \begin{cases} y = 2x \\ 2x + y = -12 \end{cases}$$

$$y = 2(-3)$$

$$y = -6$$

$$2x + (2x) = -12$$

$$\frac{4x}{4} = \frac{-12}{4}$$

$$x = -3$$

$$(-3, -6)$$

$$2. \begin{cases} 2x + 5y = -7 \\ 3x + 2 = y \end{cases}$$

$$3x + 2 = y$$

$$2x + 5(3x + 2) = -7$$

$$2x + 15x + 10 = -7$$

$$\frac{17x + 10}{-10} = \frac{-7}{-10}$$

$$\frac{17x}{17} = \frac{-17}{17}$$

$$y = 3(-1) + 2$$

$$y = -1$$

$$x = -1$$

$$(-1, -1)$$

$$3. \begin{cases} x = y - 4.2 \\ 2x - 3y = -9 \end{cases}$$

$$2x - 3y = -9$$

$$2(y - 4.2) - 3y = -9$$

$$2y - 8.4 - 3y = -9$$

$$\frac{-1y - 8.4}{+8.4} = \frac{-9}{+8.4}$$

$$\frac{-1y}{-1} = \frac{-0.6}{-1}$$

$$y = 0.6$$

$$x = 0.6 - 4.2$$

$$x = -3.6$$

$$(-3.6, 0.6)$$

Use the following steps.

$$y = 2x + 3$$
$$4x + 2y = -2$$

Step #1: Pick the equation that is the simplest or the one that already has a variable by itself. (circle it)

Step#2: Solve for one of the variables in that equation (if it isn't already done for you)

Step #3: Now substitute into the second equation

Step #4: There should only be one variable in the equation now. Solve for that variable.

Step #5: Now substitute that value into the first equation

Step #6: Solve for the variable that remains in the equation.

Step #7: Write the solution as an ordered pair.

Step #8: Check your answer.

$$\begin{aligned} 4. \quad & 2y = 2x + 6 \\ & 6x + 2y = 22 \end{aligned}$$

$$\begin{aligned} 5. \quad & 3x + 3y = 9 \\ & 4x - 2y = 18 \end{aligned}$$



Activity!



# Homework

pg. 340 #1-7(odd), 26, 33, 36-37