

# Algebra II CCP

## Summer Practice 2009-2010

The following work is for your practice only. It is for you to sharpen your Algebra skills and be ready for the first day of the 2009-2010 school year. You will be starting Algebra II on the first day of school. You will have a pre-assessment test (formative) during the first week of school to see where you might need some extra practice. You will do some extra practice in class as well as continuing with the Algebra II lessons. If you continue to have problems, you will be expected to see your teacher for extra help immediately. We don't want you falling behind. Teachers will also continue to include practice problems from previous lessons (including Algebra I and Geometry) to keep honing your skills. These will be assessed through your home and class work, Algebra II quizzes and tests so you can demonstrate your mathematics learning in a continuous fashion. Independent practice helps us to own our learning!

These problems shouldn't take too long! Have a great summer!!

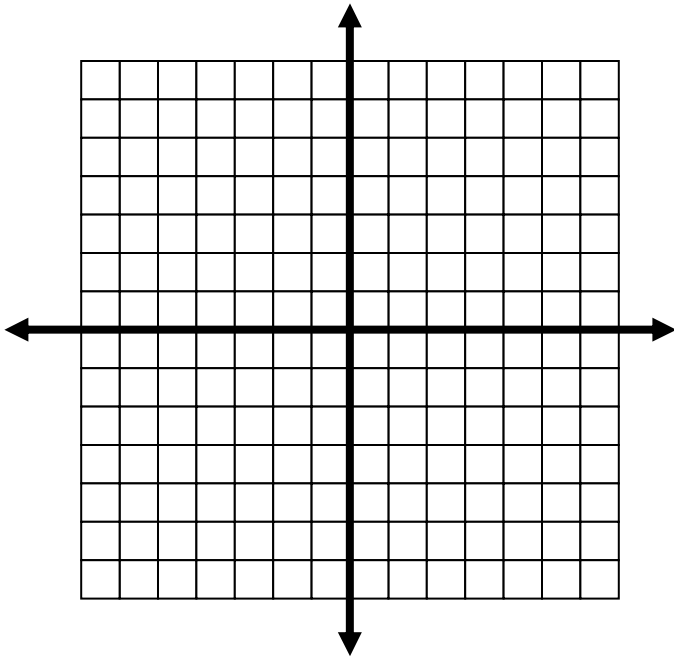
**Objectives:**

- Discover what the graph of a linear function looks like, and what effects the values of  $m$  and  $b$  have.
- Given the particular equation of a linear function, plot its graph quickly, using slope and  $y$ -intercept
- Given an equation in point-slope form, plot the graph quickly, and transform it to the other two forms
- Given the information about the graph of a linear function, write its particular equation.
- Given a situation in which two real-world variables are related by a straight-line graph, be able to:
  - a. Sketch the graph
  - b. Find the particular equation
  - c. Use the equation to predict values of either variable
  - d. Figure out what the slope and intercepts tell you about the real world

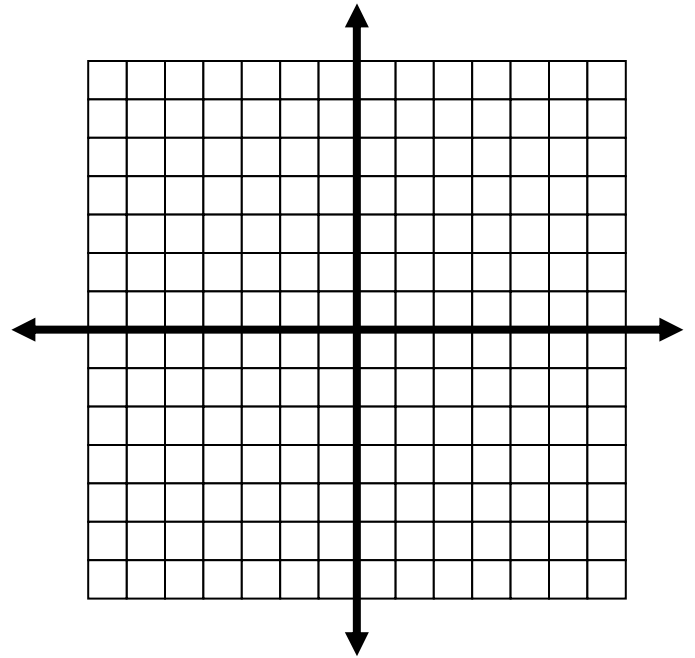
## Properties of Linear Function Graphs

Using graph paper, neatly plot the graphs of these linear functions. Be sure to label your axes.

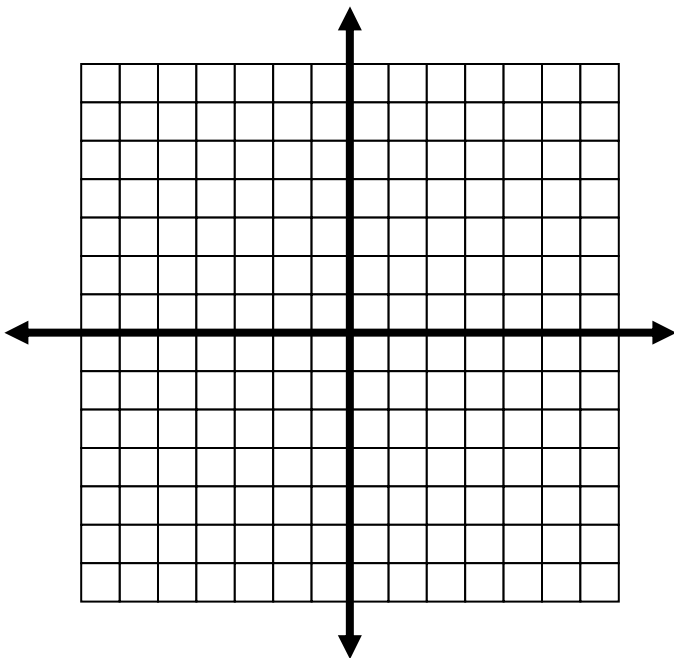
1.  $x - 2y = 6$



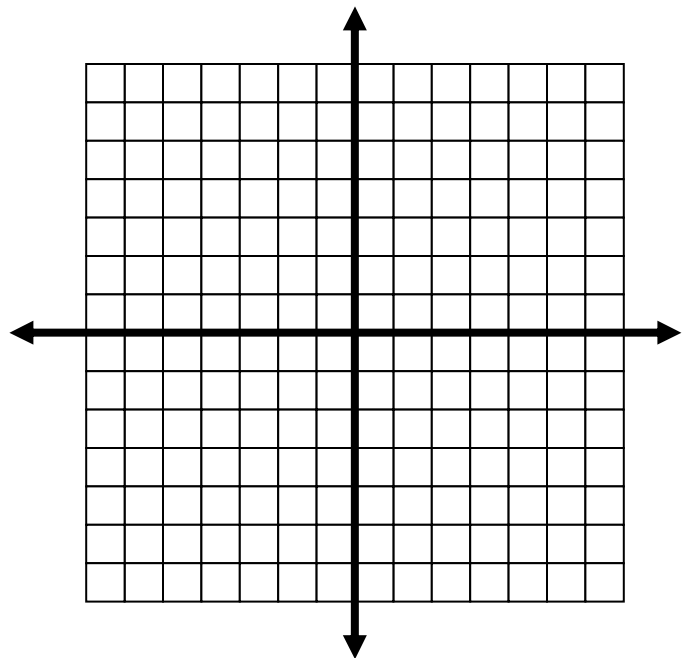
2.  $3x + 2y = 6$



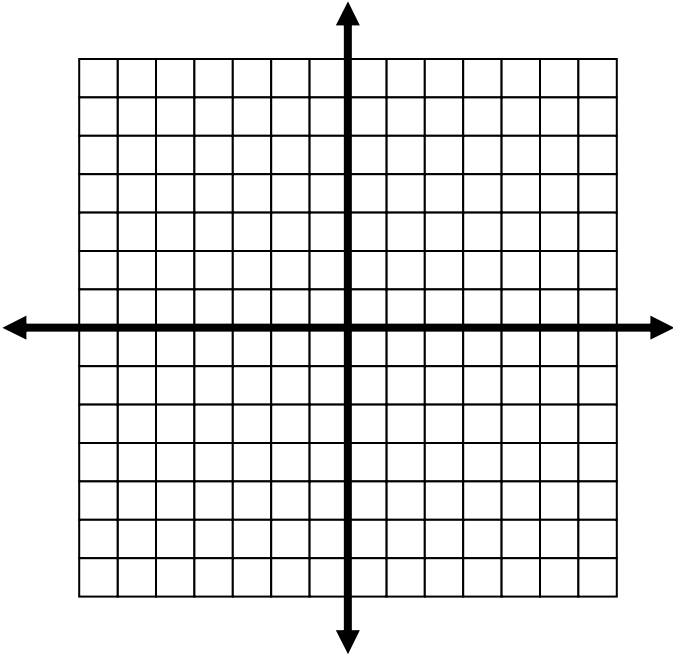
3.  $x - y = 4$



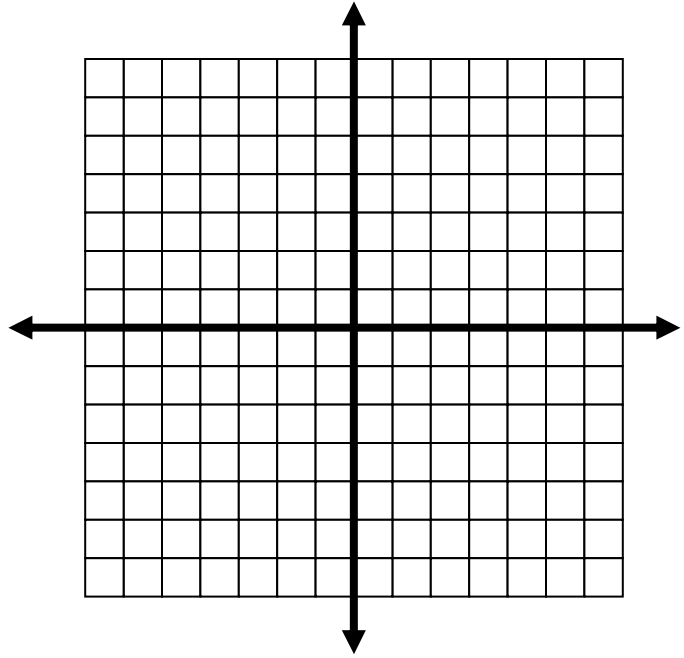
4.  $y = -3x$



5.  $y = x - 3$



6.  $y = -\frac{2}{3}x + 1$



**Solve in the set of real numbers, then graph the inequalities on a number line.**

1.  $6x - 2 = 5(3 - 2x)$

2.  $|2 - 3x| = 15$

3.  $2(4 - 5x) < -2x + 8$

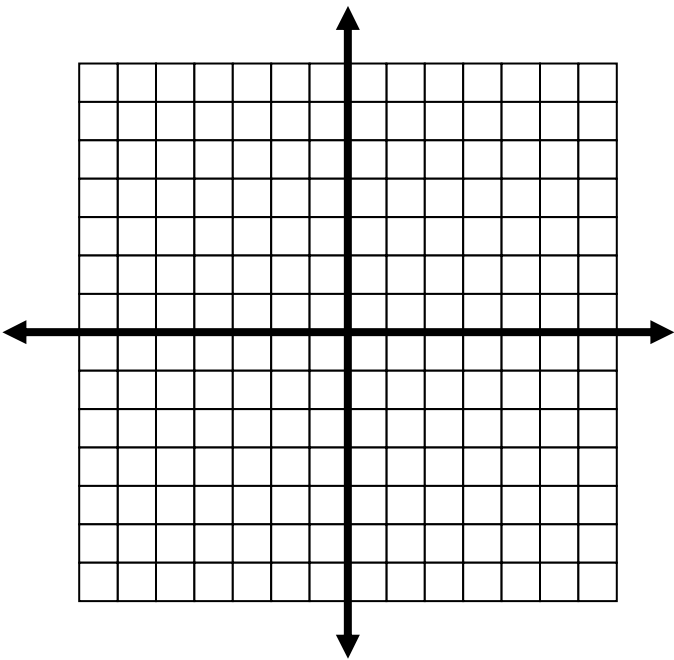
4.  $|x - 5| \leq 7$

## Other Forms of Linear Equations

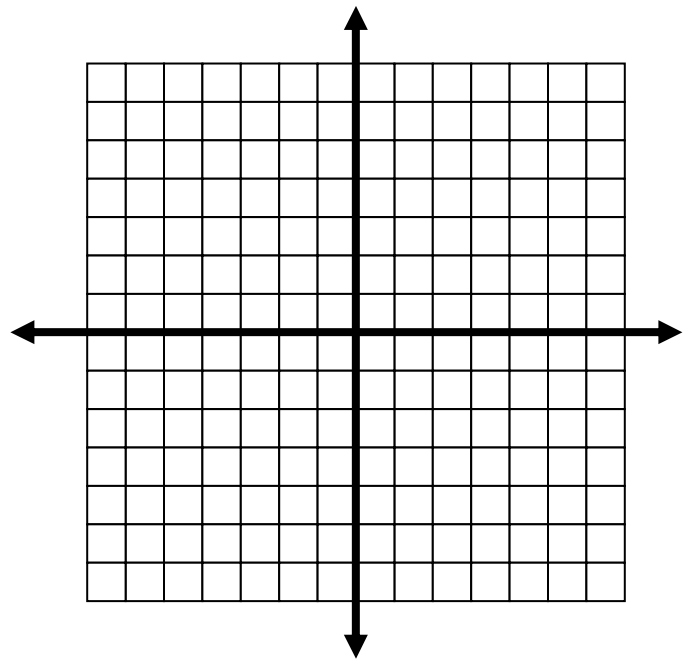
Each of the following linear equations is in point-slope form:  $y - y_1 = m(x - x_1)$  where  $m$  is the slope and  $(x_1, y_1)$  is a point on the line. For each of these problems, do the following:

- Plot the graph clearly showing the point and slope specified in the equation.
- Rewrite in slope-intercept form ( $y = mx + b$ ).
- Rewrite in standard form ( $Ax + By = C$ ).

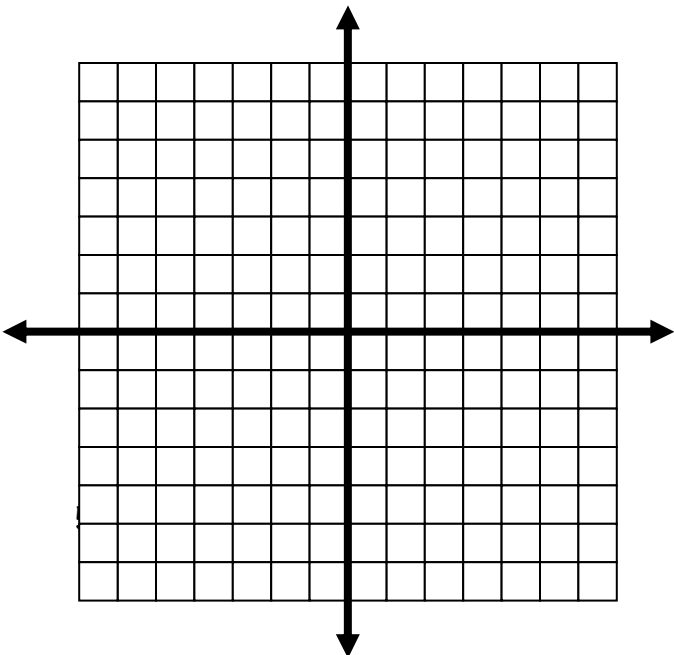
1.  $y - 3 = \frac{2}{5}(x - 2)$



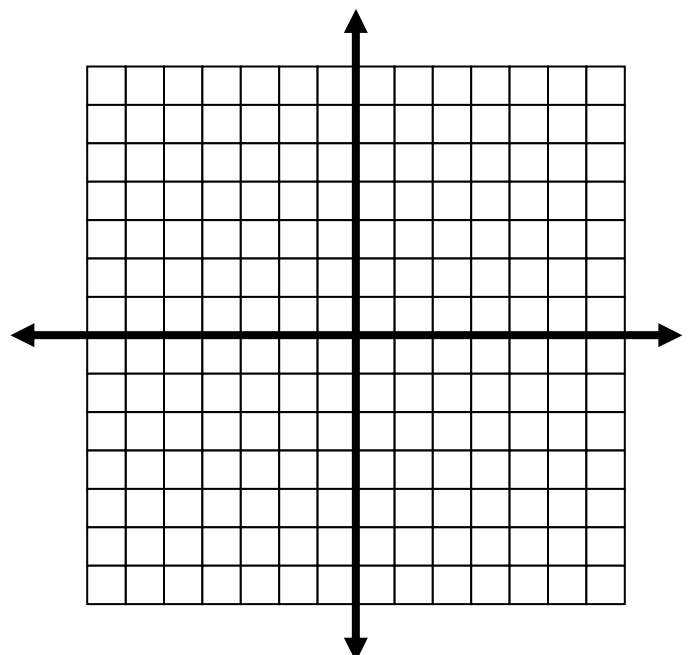
2.  $y - 4 = \frac{3}{5}(x - 5)$



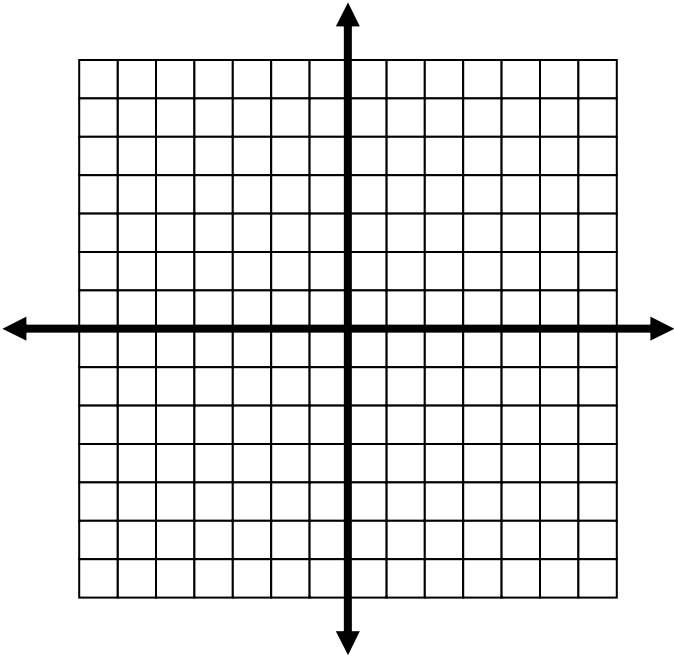
3.  $y = \frac{2}{3}(x + 9)$



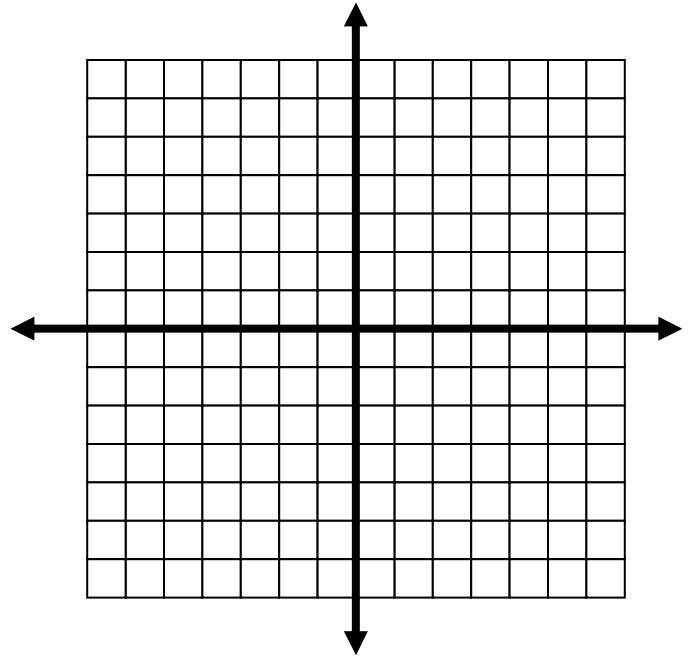
4.  $y + 3 = \frac{3}{4}x$



5.  $y = -\frac{3}{4}(x + 8)$



6.  $y + 3 = \frac{5}{3}(x - 6)$



## Write the Equation of the Line in Point-Slope Form

$$y - y_1 = m(x - x_1)$$

Write an equation in point-slope form for each of the linear equations described below.

1. Has a slope of  $\frac{3}{4}$  and passes through the point  $(-2, 4)$ .

2. Has a slope of  $-3$  and passes through the point  $(3, -5)$ .

3. Has a slope of  $\frac{5}{2}$  and passes through the point  $(1, 8)$ .

4. Has a slope of  $-5$  and passes through the point of  $(8, 3)$ .

## Write Equations of Linear Functions

From the descriptions below of specific linear equations, do the following:

- a. Write the equation of the line in slope-intercept form.
- b. Write the equation of the line in Standard Form.

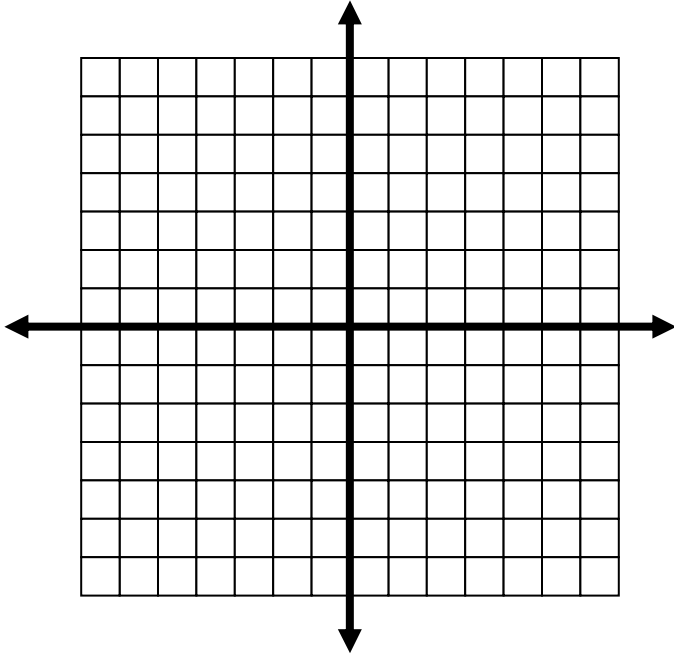
1. Has a y - intercept of -3 and a slope of -2.
  
2. Has a slope of 8 and passes through the point (2, -3).
  
3. Is parallel to  $y = 3x - 5$  and passes through the point (2, -3).
  
4. Is perpendicular to  $y = -\frac{3}{4}x + 4$  and passes through the point (2, -3).
  
5. Passes through the points (-3, 3) and (7, -12).



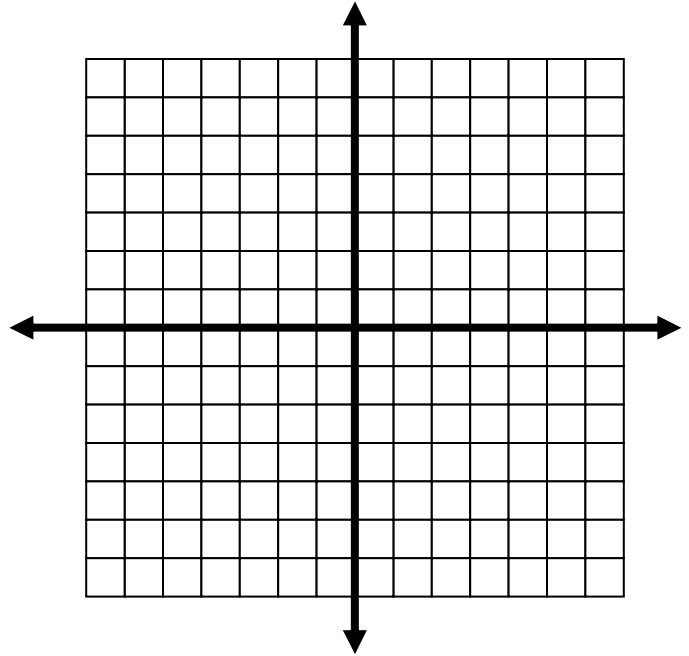
# Solving Linear Systems

Solve each of the following linear systems by graphing.

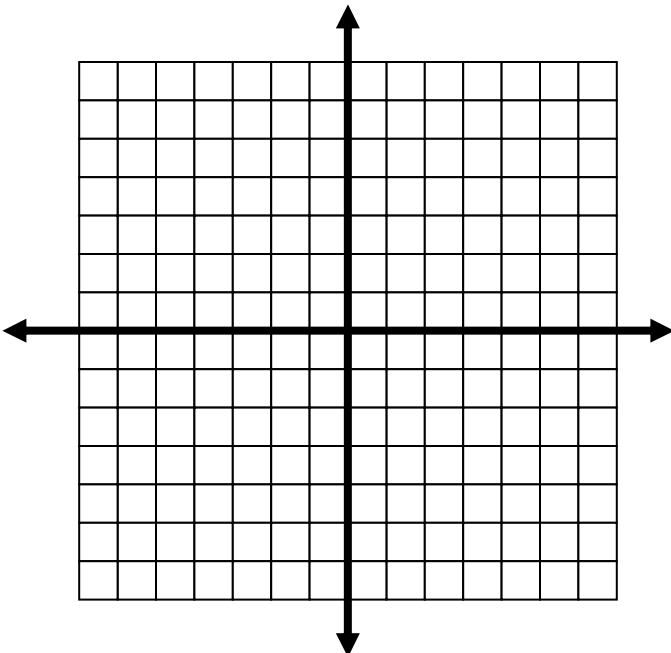
1.  $2x + y = 4$   
 $x + y = 2$



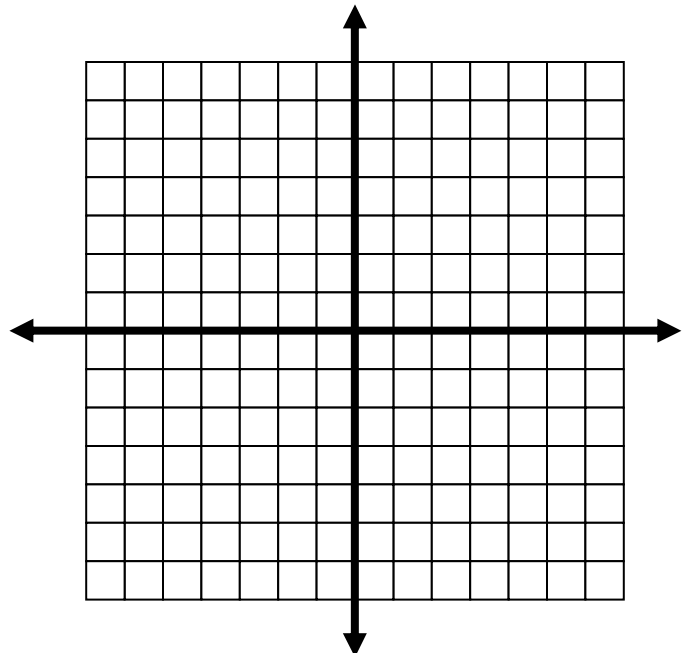
2.  $x - 2y = 2$   
 $2x + 5y = -5$



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



4.  $4x - 2y = 8$   
 $2x - y = 4$



## Solving Linear Systems by Elimination

Solve each of the following linear systems using elimination.

1. 
$$\begin{aligned} 5p + 3q &= 10 \\ 2p - 3q &= 4 \end{aligned}$$

2. 
$$\begin{aligned} 2a - b &= 3 \\ 4a + b &= 9 \end{aligned}$$

3. 
$$\begin{aligned} 2d - 5e &= -3 \\ 3d + 2e &= 5 \end{aligned}$$

4. 
$$\begin{aligned} 2x + 3y &= 8 \\ 6x + 5y &= 0 \end{aligned}$$

5. 
$$\begin{aligned} 3p - 4q &= 12 \\ 5p + 8q &= 20 \end{aligned}$$

6. 
$$\begin{aligned} 2a + 5b &= 3 \\ 3a - 2b &= -5 \end{aligned}$$

7. 
$$\begin{aligned} 3j - 5k &= 15 \\ 4j - 7k &= 21 \end{aligned}$$

8. 
$$\begin{aligned} 3w - 4x &= -4 \\ 5w - 7x &= -9 \end{aligned}$$

## Linear System Word Problems

1. The sum of two numbers is 15 less than twice the first number. Their difference is 5 less than twice the second number. Find each of the numbers.
2. The cost of 12 oranges and 7 apples is \$5.36. Eight oranges and 5 apples cost \$3.68. Find the cost of each orange and each apple.
3. Three pairs of jeans and six shirts cost \$104.25. The cost of 4 pairs of jeans and 5 shirts is \$112.15. Find the cost of each pair of jeans and each shirt.