Math 60, Sections 4.1 and 4.2 Notes and Practice Name:_____

Section 4.1 Cartesian Coordinates

1. Write the location of each item on the map using a letter-number pair.

a. Starting point

b. Parrot

c. Palm Tree

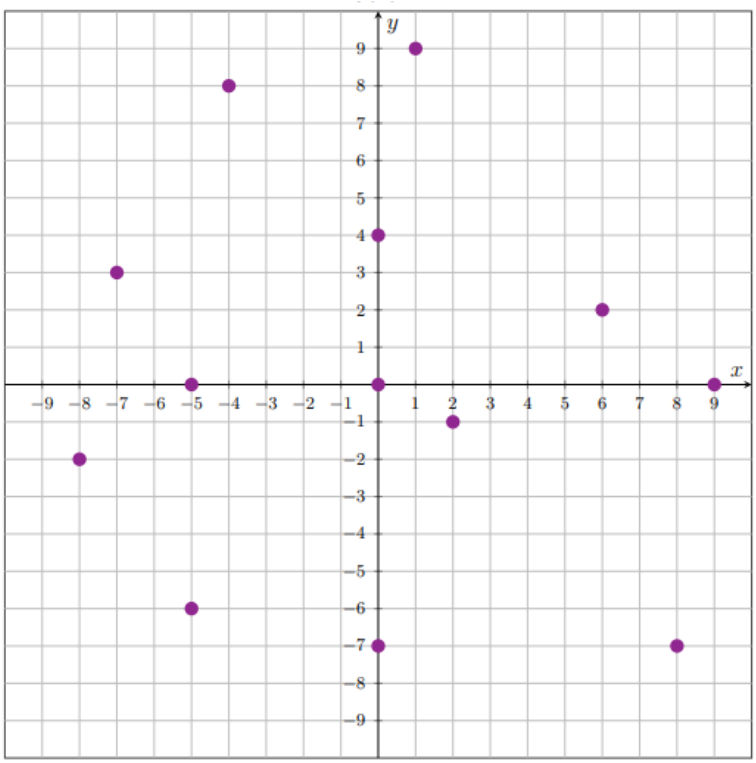
d. Key

e. Rock

f. Treasure Chest

<u>The Cartesian Coordinate System for Two Variables</u>

2. Label the ordered pair of each point on the Cartesian coordinate system.



The grid shown below is known as the Cartesian coordinate system or the rectangular coordinate system.

- A point is represented as an ordered pair, (x, y)
- The horizontal axis is called the x -axis
- The vertical axis is called the y -axis
- There are four quadrants labeled counter clockwise: I, II, III, IV
- The point $(0,0)$ is called the origin
- The scale is the width of each space on the graph

3. Label the axes, scale, and quadrants of the graph.

4. Draw a dot at each of the following coordinates and write which quadrant the point is in, or which axis it is on.

a. $(4,5)$

b. $(-1,3)$

c. $(-5,-6)$

d. $(4,-7)$

e. $(7,0)$

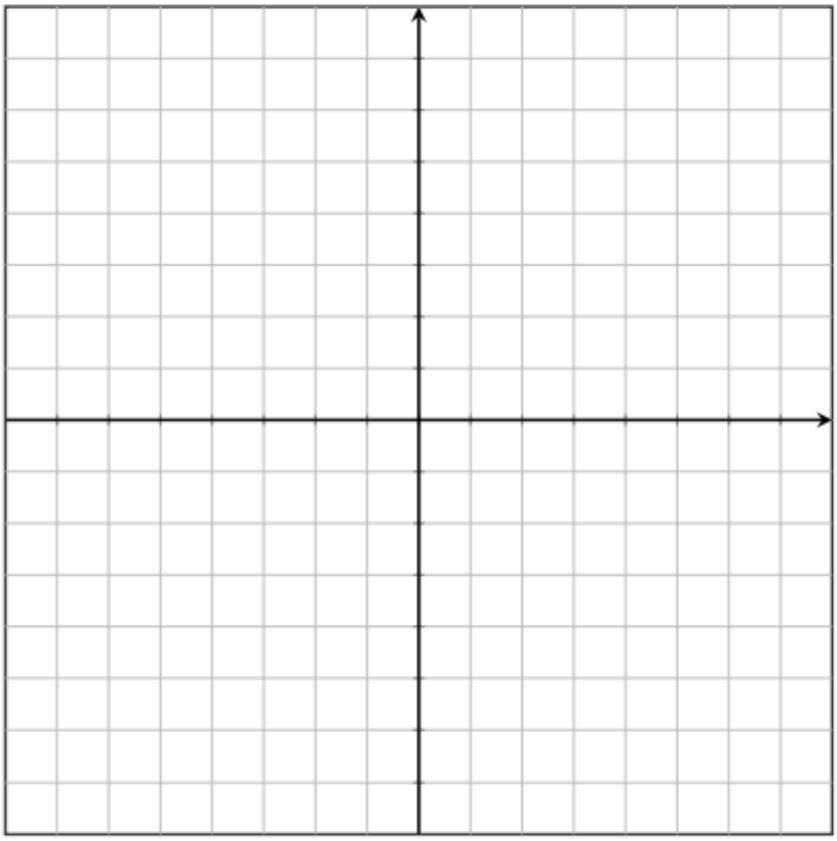
f. $(0,-2)$

g. $(-3,5.5)$

h. $(8,8)$

i. $\left(3\frac{1}{2},-6\right)$

j. $(-3,-3)$



5. For each of the following conditions, state which quadrant the point would be in, or which axis the point would be on.

a. $x > 0$ and $y < 0$

b. $x > 0$ and $y = 0$

c. $x < 0$ and $y < 0$

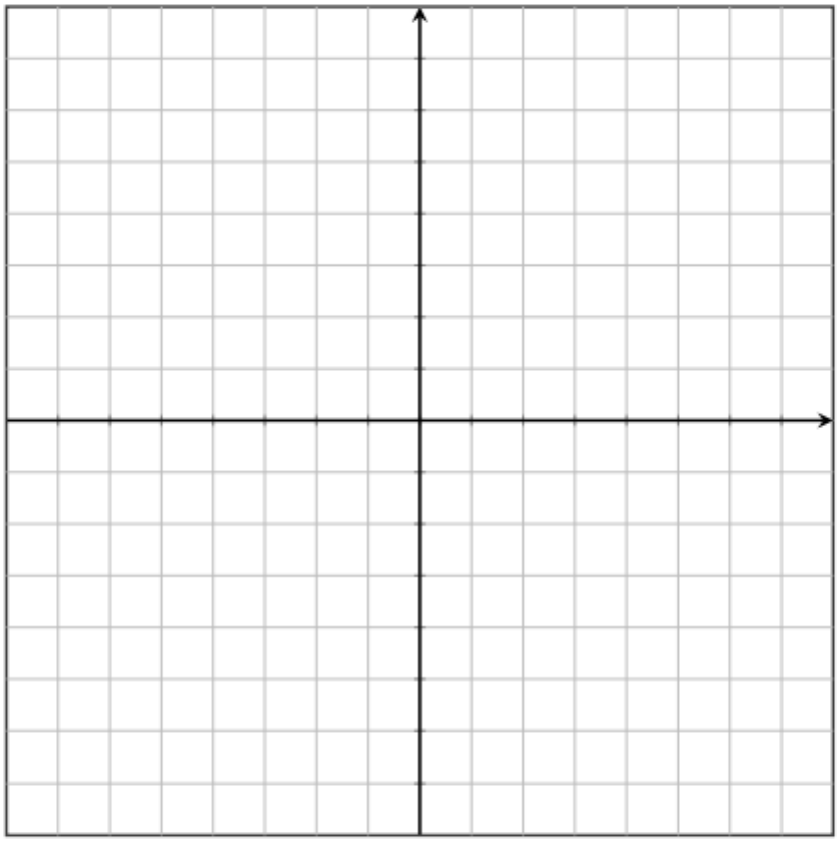
Section 4.2 Graphing Equations

6. Jamie charged $250 on a 0%-interest-for 6-month credit card. They decided to pay $50 per month until the balance is paid off, and then keep saving that amount in a savings account (we will ignore any interest for the time being.)

a. Complete the table for Jamie's balance each month.

b. Using a horizontal scale of 1 for months and a vertical scale of $50, plot Jamie's balance on the graph. Label the axes and scale.

Month x	Current Balance (Owed or Saved) y
0	$y =$
1	$y =$
2	$y =$
3	$y =$
4	$y =$
5	$y =$
6	$y =$
7	$y =$
8	$y =$
x	$y =$



c. Write a few ordered pairs that represent solutions to the linear model. Then draw a line to graph all solutions of the equation.

d. Determine whether the following ordered pairs are solutions to the equation.

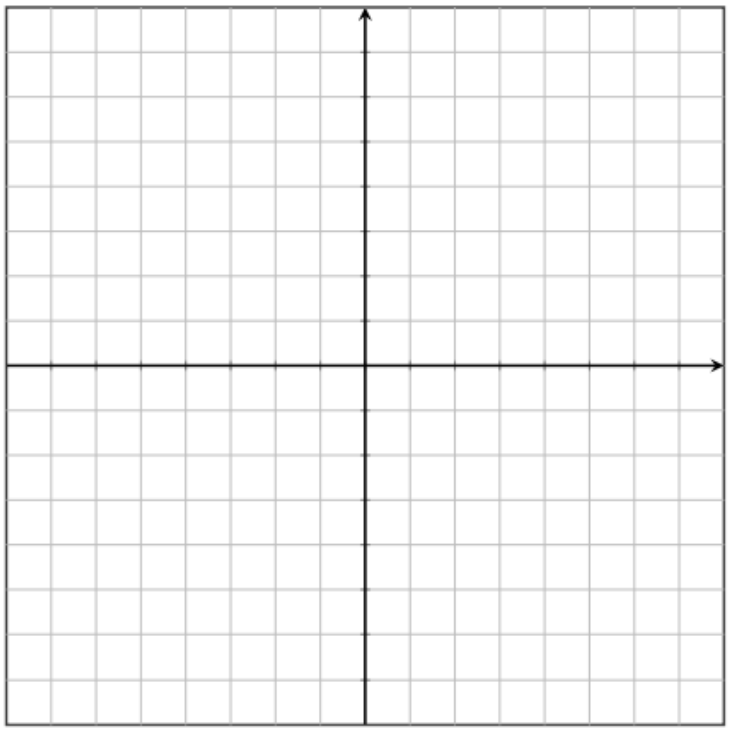
$(10, 250)$ $(-1, -300)$ $(1.5, -175)$ $(5, 25)$

7. Determine whether the following ordered pairs are solutions to the equation $2x+5y=20$

$(0,4)$ $(-5,6)$ $(2,3)$

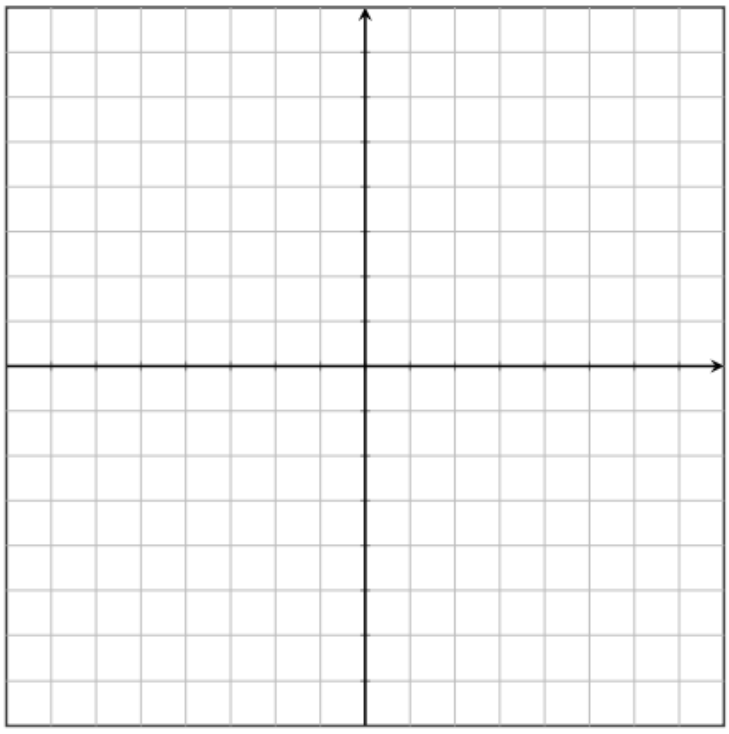
8. Make a table of solutions to the linear equation $y=3x+1$. Then graph the line.

x	$y=3x+1$	(x,y)



9. Make a table of solutions to the linear equation $y=\frac{1}{2}x-1$. Then graph the line.

x	$y=\frac{1}{2}x-1$	(x,y)



More Practice

10. Draw a dot at each of the following coordinates and write which quadrant the point is in, or which axis it is on.

a. $(-6,0)$

b. $(4,-2)$

c. $(-3,3)$

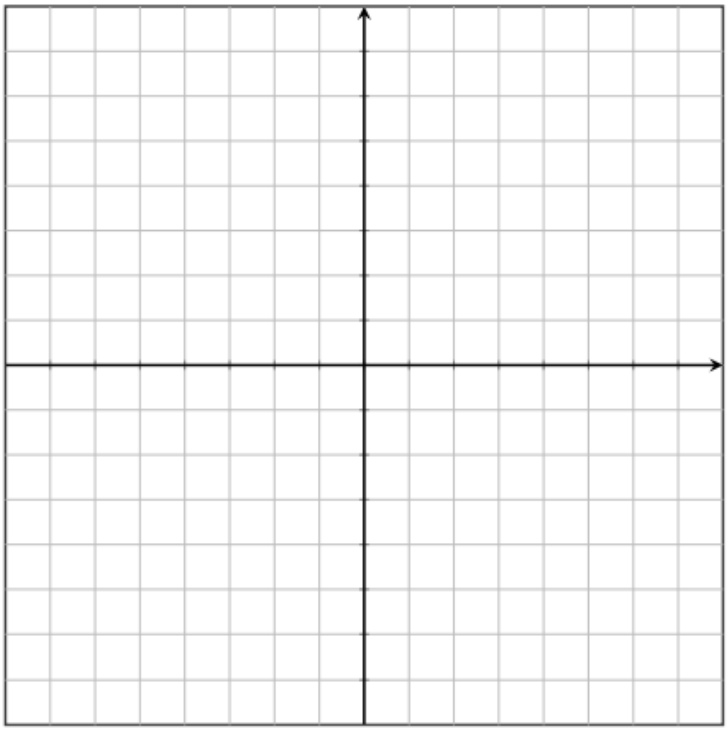
d. $(0,-4.5)$

e. $\left(\frac{1}{2},3\right)$

f. $(-5,2)$

g. $(0,0)$

h. $(-1,-8)$



11. Determine whether the following ordered pairs are solutions to the equation $y=-3x+6$

$(1,3)$ $(-1,-3)$ $(2,0)$

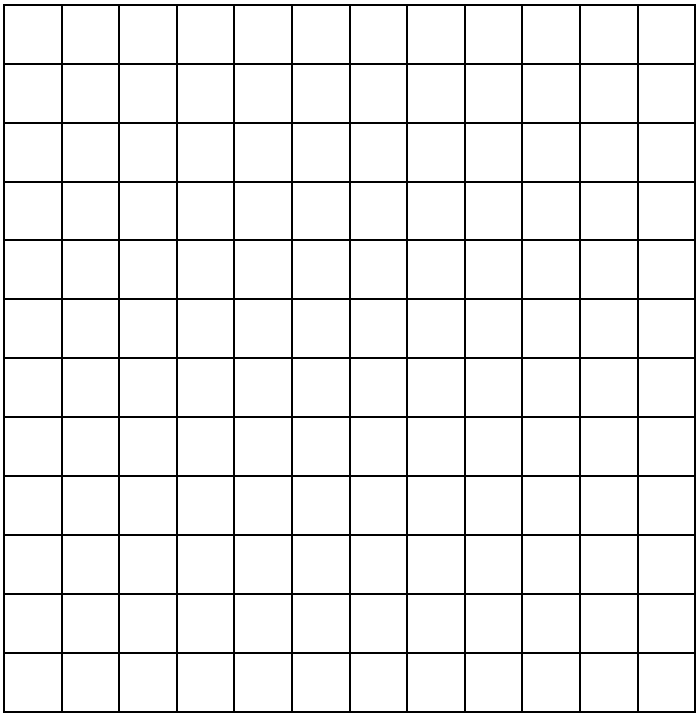
12. Determine whether the following ordered pairs are solutions to the equation $y=-\frac{2}{3}x+4$

$(3,-6)$ $(-3,6)$ $(0,4)$

13. A car's gas tank holds 12 gallons of gas. The car uses fuel at an average rate of $0.06\frac{\text{gal}}{\text{mile}}$. Make a table of solutions to the linear equation $y = 12 - 0.06x$. Then graph the line.

Hint: Choose your x-values wisely☺

x	$y = 12 - 0.06x$	(x, y)



14. Make a table of solutions to the linear equation $y = -4x$. Then graph the line.

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