

## Section P.5 Graphical Representation of Data

**Objective:** In this lesson you learned how to plot points in the coordinate plane and use the Distance and Midpoint Formulas.

Course Number

Instructor

Date

### Important Vocabulary

Define each term or concept.

**Cartesian plane**

**Rectangular coordinate system**

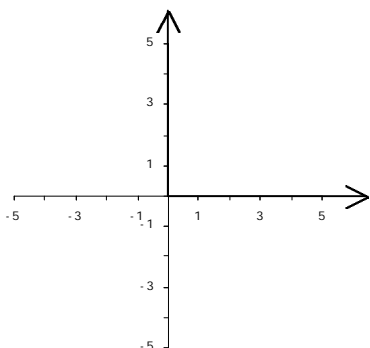
### I. The Cartesian Plane (Pages 47–48)

An ordered pair is . . .

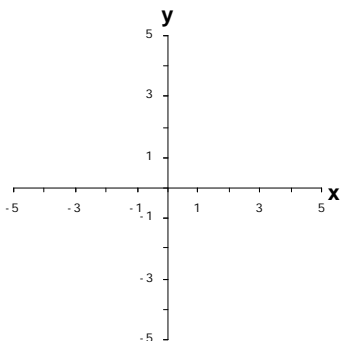
*What you should learn*  
How to plot points in the Cartesian plane

On the Cartesian plane, the horizontal real number line is usually called the \_\_\_\_\_, and the vertical real number line is usually called the \_\_\_\_\_. The origin is the \_\_\_\_\_ of these two axes, and the two axes divide the plane into four parts called \_\_\_\_\_.

On the Cartesian plane shown below, label the  $x$ -axis, the  $y$ -axis, the origin, Quadrant I, Quadrant II, Quadrant III, and Quadrant IV.



**Example 1:** Explain how to plot the ordered pair  $(3, -2)$ , and then plot it on the Cartesian plane provided.



To shift a figure plotted in the rectangular coordinate system by  $a$  units to the left and  $b$  units upward, . . .

If  $(x, y)$  is an original point on a graph, \_\_\_\_\_ is a reflection of this original point in the  $y$ -axis. If  $(x, y)$  is an original point on a graph, \_\_\_\_\_ is a reflection of the original point in the  $x$ -axis. If  $(x, y)$  is an original point, \_\_\_\_\_ is a reflection of the original point through the origin.

## II. Representing Data Graphically (Pages 49–50)

To sketch a scatter plot of paired data given in a table, . . .

To create a bar graph of paired data given in a table, . . .

***What you should learn***  
 How to represent data graphically using scatter plots, bar graphs, and line graphs

To create a line graph of paired data given in a table, . . .

### III. The Distance Formula (Pages 50–51)

The **Distance Formula** states that . . .

***What you should learn***  
How to use the Distance Formula to find the distance between two points

**Example 2:** Explain how to use the Distance Formula to find the distance between the points  $(4, 2)$  and  $(5, -1)$ . Then find the distance and round to the nearest hundredth.

**Example 3:** Explain how to use a graphical solution to find the distance between the points  $(4, 2)$  and  $(5, -1)$ .

### IV. The Midpoint Formula (Page 52)

The **midpoint** of a line segment is the point that subdivides the segment into two portions of \_\_\_\_\_ length.

The **Midpoint Formula** gives the midpoint of the segment joining the points  $(x_1, y_1)$  and  $(x_2, y_2)$  as . . .

***What you should learn***  
How to use the Midpoint Formula to find the midpoint of a line segment

**Example 4:** Explain how to find the midpoint of the line segment with endpoints at  $(-8, 2)$  and  $(6, -10)$ . Then find the coordinates of the midpoint.

**V. The Equation of a Circle** (Page 53)

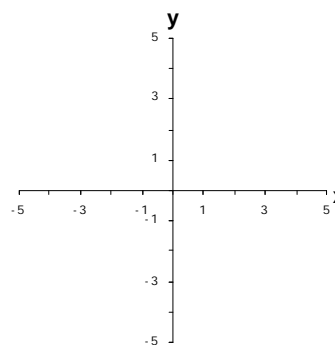
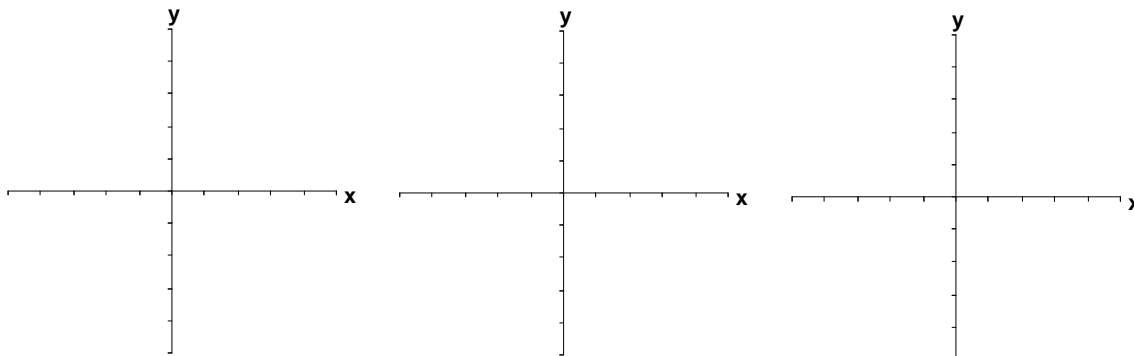
A **circle** in the plane consists of . . .

*What you should learn*  
How to find the equation  
of a circle

The **standard form of the equation of a circle** with center  $(h, k)$  and radius  $r$  is \_\_\_\_\_.

The standard form of the equation of a circle with radius  $r$  and its center at the origin is \_\_\_\_\_.

**Example 5:** For the equation  $(x + 2)^2 + (y - 1)^2 = 4$ , find the center and radius of the circle and then sketch the graph of the equation.

**Additional notes****Homework Assignment**

Page(s)

Exercises