

Chapter P Prerequisites

Section P.1 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.

Rectangular coordinate system

Cartesian plane

I. The Cartesian Plane (Pages 2–3)

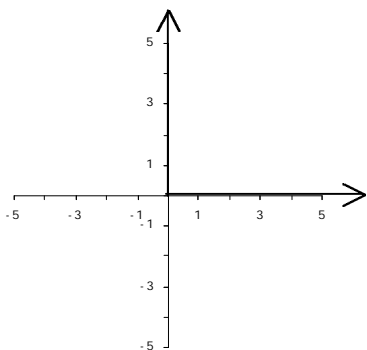
An ordered pair is . . .

What you should learn

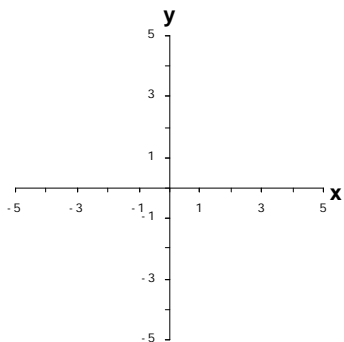
How to plot points in the Cartesian plane

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 4–5)

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 5–6)

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

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 $(5, -1)$.

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

IV. The Midpoint Formula (Page 7)

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 . . .

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.

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

V. The Equation of a Circle (Page 8)

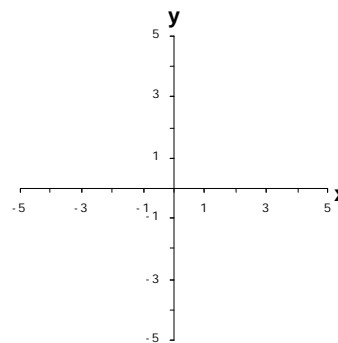
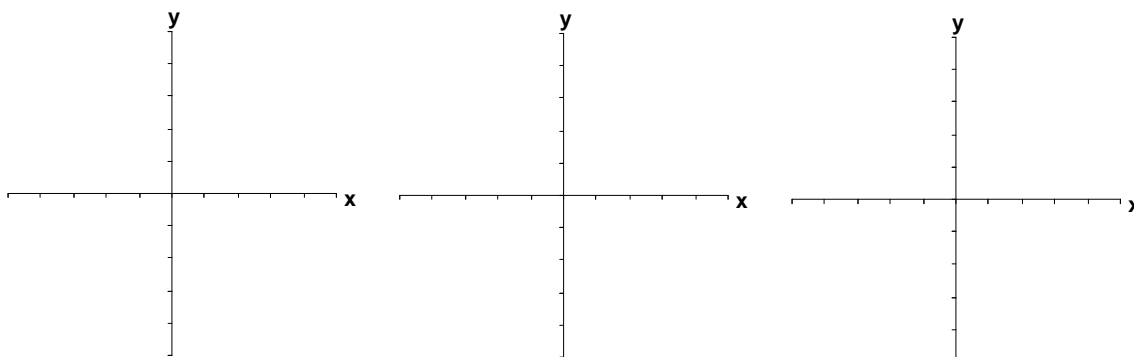
A circle of radius r in the plane consists of . . .

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