

## Section 1.2 Graphs of Equations

**Objective:** In this lesson you learned how to sketch the graph of an equation.

Course Number

Instructor

Date

### Important Vocabulary

Define each term or concept.

**Equation in two variables**

**Solution of equation in two variables**

**Graph of an equation**

**Intercepts**

**Symmetry**

**Circle**

### I. The Graph of an Equation (Pages 14–17)

To sketch the graph of an equation in two variables using the point-plotting method, . . .

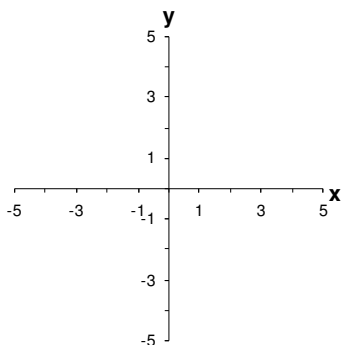
#### *What you should learn*

How to sketch graphs of equations

A shortcoming of the point-plotting method is . . .

**Example 1:** Complete the table. Then use the resulting solution points to sketch the graph of the equation  $y = 3 - 0.5x$ .

$x$	-4	-2	0	2	4
$y$					



To graph an equation involving  $x$  and  $y$  on a graphing utility, . . .

## II. Intercepts of a Graph (Page 17)

An  $x$ -intercept is written as the ordered pair \_\_\_\_\_,  
and a  $y$ -intercept is written as the ordered pair \_\_\_\_\_.

To identify the  $x$ -intercepts of a graph, . . .

To identify the  $y$ -intercepts of a graph, . . .

### *What you should learn*

How to find  $x$ - and  
 $y$ -intercepts of graphs of  
equations

## III. Symmetry (Pages 18–20)

The three types of symmetry that a graph can exhibit are . . .

Knowing the symmetry of a graph before attempting to sketch it  
is helpful because . . .

### *What you should learn*

How to use symmetry to  
sketch graphs of  
equations

A graph is symmetric with respect to the  $x$ -axis if, whenever  
 $(x, y)$  is on the graph, \_\_\_\_\_ is also on the graph. A  
graph is symmetric with respect to the  $y$ -axis if, whenever  $(x, y)$

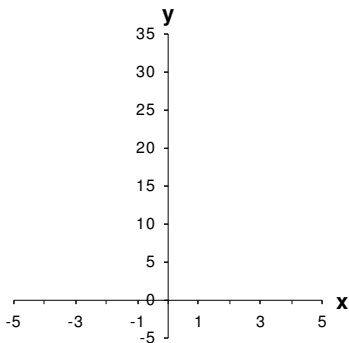
is on the graph, \_\_\_\_\_ is also on the graph. A graph is symmetric with respect to the origin if, whenever  $(x, y)$  is on the graph, \_\_\_\_\_ is also on the graph.

The graph of an equation is symmetric with respect to the  $x$ -axis if . . .

The graph of an equation is symmetric with respect to the  $y$ -axis if . . .

The graph of an equation is symmetric with respect to the origin if . . .

**Example 2:** Use symmetry to sketch the graph of the equation  $y = 2x^2 + 2$ .



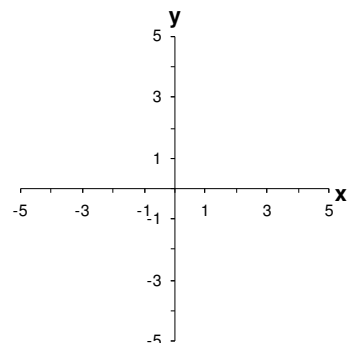
#### IV. Circles (Page 20)

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 3:** 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.

***What you should learn***  
How to find equations of and sketch graphs of circles



**V. Applications of Graphs of Equations** (Page 21)

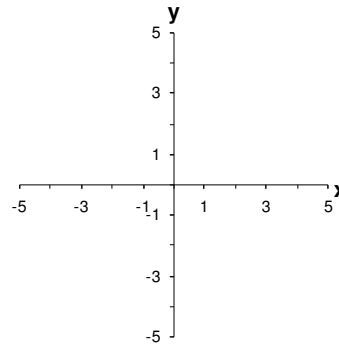
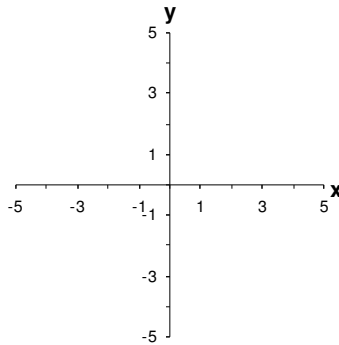
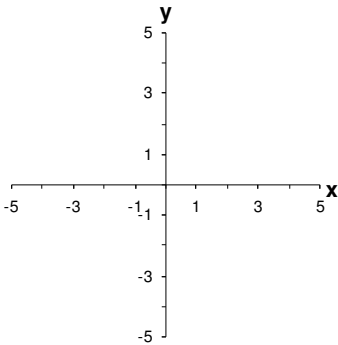
List and describe three common approaches to solving a problem.

- 1)
- 2)
- 3)

Describe a real-life situation in which a graphical solution approach would be helpful.

*What you should learn*  
How to use graphs of equations in solving real-life problems

**Additional notes**



**Homework Assignment**

Page(s)

Exercises