

Chapter 1 Functions and Their Graphs

Section 1.1 Graphs of Equations

Objective: In this lesson you learned how to sketch the graphs of equations.

Course Number

Instructor

Date

Important Vocabulary

Define each term or concept.

Graph of an equation

Intercepts

Symmetry

Circle

I. The Graph of an Equation (Pages 100–101)

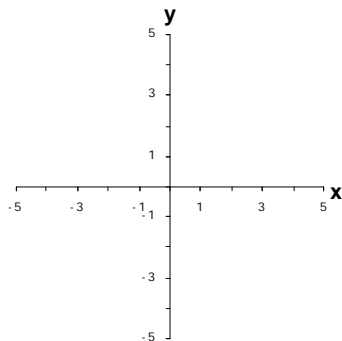
To sketch the graph of an equation in two variables using the point-plotting method, . . .

What you should learn
How to sketch graphs of equations

A disadvantage 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					



II. Intercepts of a Graph (Page 102)

An x -intercept is written as the ordered pair _____,
and a y -intercept is written as the ordered pair _____.

To find x -intercepts, . . .

To find y -intercepts, . . .

Example 2: For the equation $3x - 4y = 12$, find:

(a) the x -intercept(s), and (b) the y -intercept(s).

What you should learn

How to find x - and
 y -intercepts of graphs

III. Symmetry (Pages 103–105)

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 . . .

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 x -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.

What you should learn

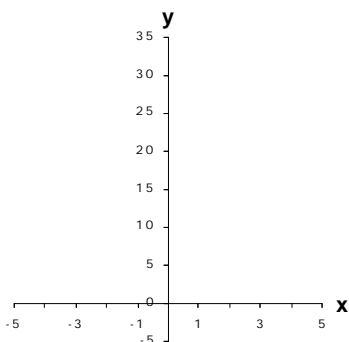
How to use symmetry to
sketch graphs of
equations

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 x -axis if . . .

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

Example 3: Use intercepts and symmetry to sketch the graph of the equation $y = 2x^2 + 2$.



IV. Circles (Page 105)

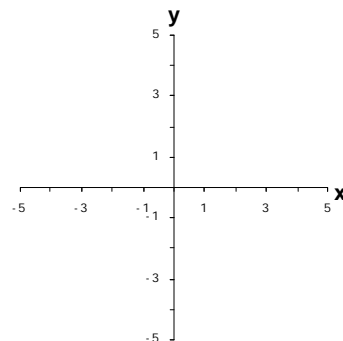
The **standard form of the equation of a circle** with center (h, k) and radius r is _____.

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

Example 4: 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 and sketch graphs of circles



V. Applications of Graphs of Equations (Page 106)

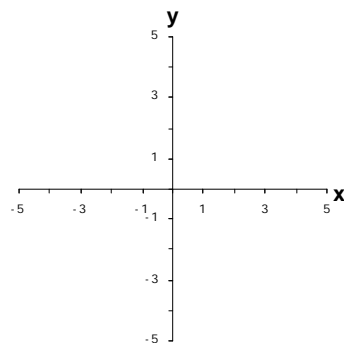
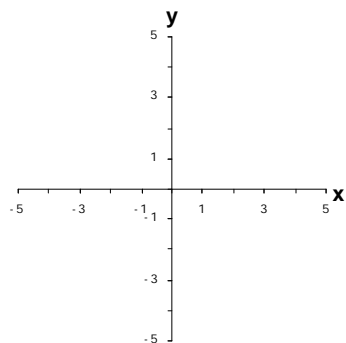
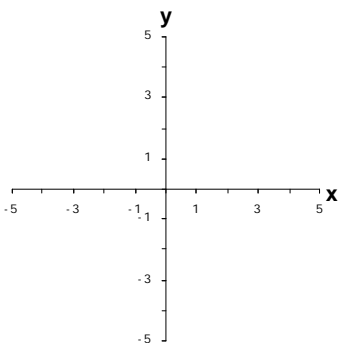
List and describe three common approaches to solving a problem.

- 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 real-life problems

Additional notes**Homework Assignment**

Page(s)

Exercises