

# Chapter 1 Functions and Their Graphs

## Section 1.1 Functions

**Objective:** In this lesson you learned how to evaluate functions and find their domains.

Course Number

Instructor

Date

### Important Vocabulary

Define each term or concept.

**Function**

**Domain**

**Range**

**Independent variable**

**Dependent variable**

### I. Introduction to Functions (Pages 74–76)

A rule of correspondence that pairs items from one set with items from a different set is a \_\_\_\_\_.

In functions that can be represented by ordered pairs, the first coordinate in each ordered pair is the \_\_\_\_\_ and the second coordinate is the \_\_\_\_\_.

Some characteristics of functions are . . .

1)

2)

3)

To decide whether a relation is a function, . . .

If any input value of a relation is matched with two or more output values, . . .

### *What you should learn*

How to decide whether relations between two variables are functions

Some common ways to represent functions are . . .

- 1)
- 2)
- 3)
- 4)

**Example 1:** Decide whether the table represents  $y$  as a function of  $x$ .

$x$	-3	-1	0	2	4
$y$	5	-12	5	3	14

## II. Function Notation (Pages 76–77)

The symbol \_\_\_\_\_ is **function notation** for the value of  $f$  at  $x$  or  $f$  of  $x$ , used to describe  $y$  as a function of  $x$ . In this case, \_\_\_\_\_ is the name of the function and \_\_\_\_\_ is the output value of the function at the input value  $x$ .

***What you should learn***  
How to use function notation and evaluate functions

**Example 2:** If  $f(w) = 4w^3 - 5w^2 - 7w + 13$ , describe how to find  $f(-2)$ .

A piecewise-defined function is . . .

## III. The Domain of a Function (Page 78)

If  $x$  is in the domain of  $f$ , then  $f$  is said to be \_\_\_\_\_ at  $x$ .

If  $x$  is not in the domain of  $f$ , then  $f$  is said to be \_\_\_\_\_ at  $x$ .

***What you should learn***  
How to find the domains of functions

The **implied domain** of a function defined by an algebraic expression is . . .

For example, the implied domain of the function  $f(x) = \sqrt{5x - 8}$  is . . .

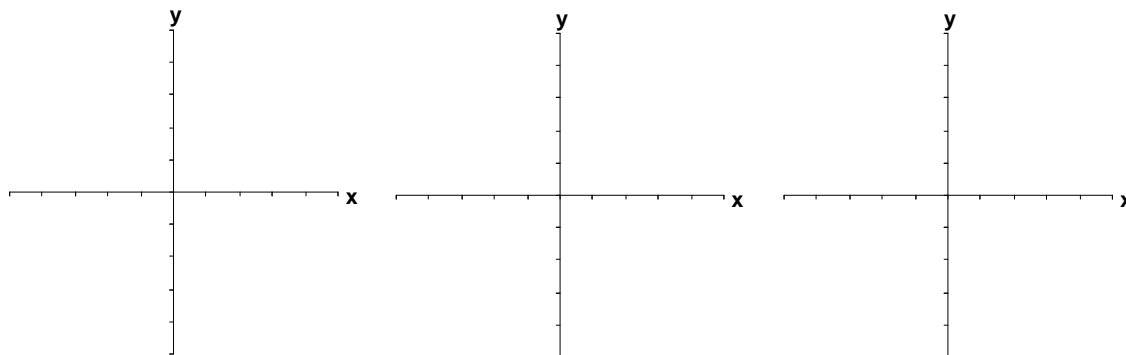
#### IV. Applications of Functions (Pages 79–81)

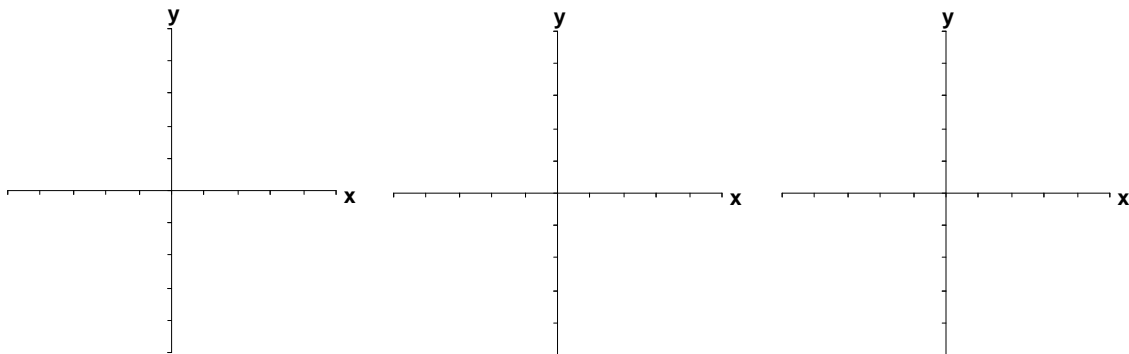
A **difference quotient** is defined as . . .

Describe a real-life situation which can be represented by a function.

***What you should learn***  
How to use functions to model and solve real-life problems

#### Additional notes



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

Page(s)

Exercises