## Section 1.9 Inverse Functions

**Objective:** In this lesson you learned how to find inverse functions graphically and algebraically.

Important Vocabulary

Define each term or concept.

**Inverse function** 

**Horizontal Line Test** 

I. Inverse Functions (Pages 84–85)

For a function f that is defined by a set of ordered pairs, to form the inverse function of f, . . .

For a function f and its inverse  $f^{-1}$ , the domain of f is equal to \_\_\_\_\_\_, and the range of f is equal to

To verify that two functions, f and g, are inverse functions of each other, . . .

Example: Verify that the functions f(x) = 2x - 3 and  $g(x) = \frac{x+3}{2}$  are inverse functions of each other.

## II. The Graph of an Inverse Function (Page 86)

If the point (a, b) lies on the graph of f, then the point (\_\_\_\_\_) must lie on the graph of  $f^{-1}$  and vice versa. The graph of  $f^{-1}$  is a reflection of the graph of f in the line

*What you should learn* How to use graphs of functions to determine whether functions have inverse functions

*What you should learn* How to find inverse functions informally and verify that two functions are inverse functions of each other

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III. One-to-One Functions (Page 87)

To tell whether a function has an inverse function from its graph, . . .

A function *f* is **one-to-one** if . . .

A function f has an inverse function if and only if f is

**Example:** Does the graph of the function at the right have an inverse function? Explain.

**IV. Finding Inverse Functions Algebraically** (Pages 88–89)

To find the inverse of a function f algebraically, ...

1)

- 2)
- 3)
- 4)

5)

**Example:** Find the inverse (if it exists) of f(x) = 4x - 5.

Page(s)

Exercises



1

-1<sub>-1</sub>

-3

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What you should learn

Horizontal Line Test to determine if functions are

