

Section 1.5 Inverse Functions

Objective: In this lesson you learned how to find inverses of functions graphically and algebraically.

Course Number

Instructor

Date

Important Vocabulary

Define each term or concept.

Inverse function

One-to-one

Horizontal Line Test

I. The Inverse of a Function (Pages 120–122)

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

What you should learn

How to find inverse functions informally and verify that two functions are inverses of each other

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 inverses of each other, . . .

Example 1: Verify that the functions $f(x) = 2x - 3$ and

$$g(x) = \frac{x + 3}{2}$$

are inverses of each other.

II. The Graph of an Inverse Function (Page 123)

If the point (a, b) lies on the graph of f , then the point $(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ lies 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 verify graphically and numerically that two functions are inverses of each other

III. The Existence of an Inverse Function (Page 124)

A function f has an inverse f^{-1} if and only if . . .

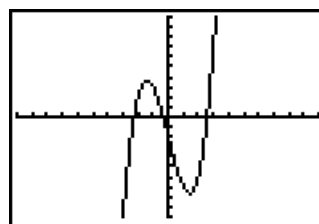
If a function is one-to-one, that means . . .

To tell whether a function is one-to-one from its graph, . . .

What you should learn

How to use graphs of functions to decide whether functions have inverses

Example 2: Does the graph of the function at the right have an inverse function? Explain.

**IV. Finding Inverse Functions Algebraically**

(Pages 125–126)

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

- 1)
- 2)
- 3)
- 4)
- 5)

What you should learn

How to find inverse functions algebraically

Example 3: Find the inverse (if it exists) of $f(x) = 4x - 5$.

Homework Assignment

Page(s)

Exercises