

Section 1.7 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 138–140)

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 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.

What you should learn

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

II. The Graph of an Inverse Function (Page 141)

If the point (a, b) lies on the graph of f , then the point (_____) 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 142)

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

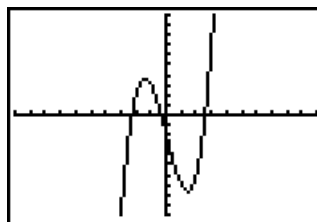
If a function is one-to-one, that means . . .

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** (Page 143)

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