Course Number

Instructor

Date

Section 1.5 Analyzing Graphs of Functions

Objective: In this lesson you learned how to analyze graphs of functions.

Important Vocabulary	Define each term or concept.
Graph of a function	
Even function	
Odd function	

I. The Graph of a Function (Pages 54–55)

What you should learn
How to use the Vertical Line Test for functions

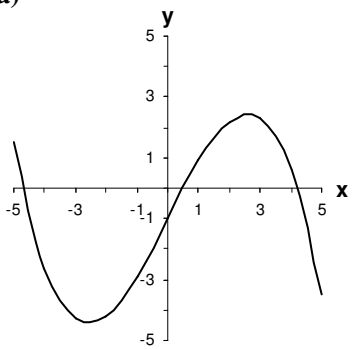
To find the domain of a function from its graph, . . .

To find the range of a function from its graph, . . .

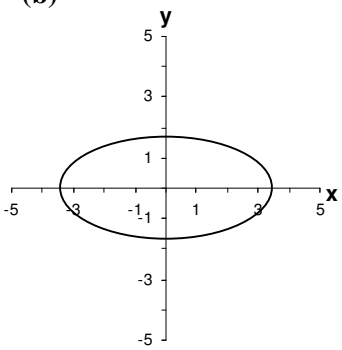
The **Vertical Line Test** for functions states that. . .

Example 1: Decide whether each graph represents y as a function of x.

(a)



(b)



II. Zeros of a Function (Page 56)

What you should learn
How to find the zeros of functions

If the graph of a function of x has an x-intercept at $(a, 0)$, then a is a _____ of the function.

The **zeros of a function** f of x are . . .

To find the zeros of a function, . . .

Example 2: Find the zeros of the function
$f(x) = 4x^2 + 19x - 5$.

III. Increasing and Decreasing Functions (Pages 57–58)

What you should learn
How to determine intervals on which functions are increasing or decreasing and determine relative maximum and relative minimum values of functions

A function f is **increasing** on an interval if, for any x_1 and x_2 in the interval, . . .
A function f is **decreasing** on an interval if, for any x_1 and x_2 in the interval, . . .
A function f is **constant** on an interval if, for any x_1 and x_2 in the interval,. . .

A function value $f(a)$ is called a **relative minimum** of f if . . .

A function value $f(a)$ is called a **relative maximum** of f if . . .

To approximate the relative minimum or maximum of a function using a graphing utility, . . .

IV. Average Rate of Change (Page 59)

What you should learn
How to determine the average rate of change of a function

For a nonlinear graph whose slope changes at each point, the **average rate of change** between any two points is . . .

The line through the two points is called the _____, and the slope of this line is denoted as _____.

Let $(a, f(a))$ and $(b, f(b))$ be two points on the graph of a nonlinear function f. The average rate of change of f from a to b is given by:

V. Even and Odd Functions (Page 60)

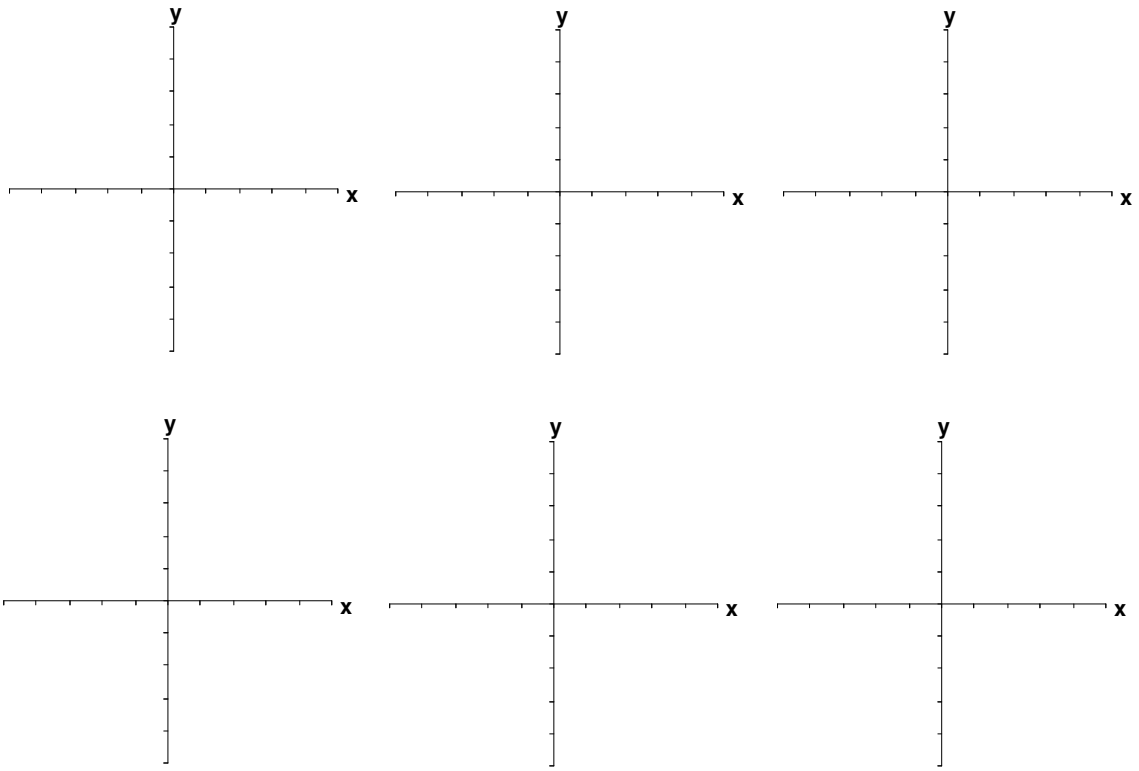
What you should learn
How to identify even and odd functions

A function whose graph is symmetric with respect to the y-axis is a(n) _____ function. A function whose graph is symmetric with respect to the origin is a(n) _____ function.

Can the graph of a nonzero function be symmetric with respect to the x-axis?

Example 3: Decide whether the function $f(x) = 4x^2 - 3x + 1$ is even, odd, or neither.

Additional notes



Homework Assignment

Page(s)

Exercises