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 49 – 50)

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

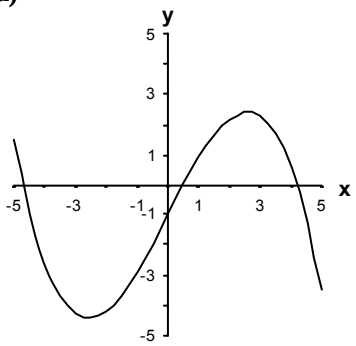
To find the domain of a function from its graph, . . .

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

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

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

(a)



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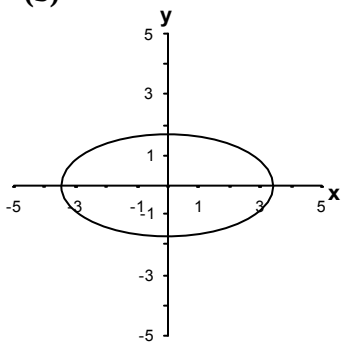


II. Zeros of a Function (Page 51)

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: Find the zeros of the function

$f(x) = 4x^2 + 19x - 5.$

III. Increasing and Decreasing Functions (Pages 52 – 53)

What you should learn
How to determine intervals on which functions are increasing or decreasing

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 . . .

The point at which a function changes from increasing to decreasing is a relative _____. The point at which a function changes from decreasing to increasing is a relative _____.

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

IV. Average Rate of Change (Page 54)

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 _____between any two points $(x_1, f(x_1))$ and $(x_2, f(x_2))$ is the slope of the line through the two points.

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

V. Even and Odd Functions (Page 55)

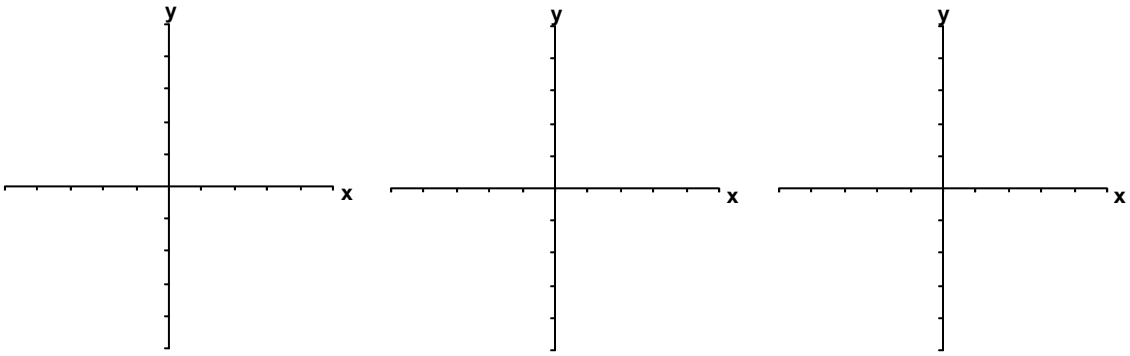
What you should learn
How to identify even and odd functions

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

Additional notes



Homework Assignment

Page(s)

Exercises