## Section 1.2 Graphs of Functions

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

Course Number
Instructor
Date

| Important Vocabulary | Define each term or concept. |
| :--- | :--- |
| Graph of a function |  |
| Greatest integer function |  |
| Step function |  |
| Even function |  |
| Odd function |  |

I. The Graph of a Function (Pages 88-89)

Explain the use of open or closed dots in the graphs of functions.

What you should learn
How to find the domains and ranges of functions and 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 1: Decide whether each graph represents $y$ as a function of $x$.
(a)

(b)


## II. Increasing and Decreasing Functions (Page 90)

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

What you should learn
How to determine intervals on which functions are increasing or decreasing the interval, . . .
A function $f$ is constant on an interval if, for any $x_{1}$ and $x_{2}$ in the interval,...

Given a graph of a function, to find an interval on which the function is increasing . . .

Given a graph of a function, to find an interval on which the function is decreasing ...

Given a graph of a function, to find an interval on which the function is constant . . .
III. Relative Minimum and Maximum Values (Pages 91-92)

A function value $f(a)$ is called a relative minimum of $f$ if $\ldots$

What you should learn How to determine relative maximum and relative minimum values of functions

A function value $f(a)$ is called a relative maximum of $f$ if $\ldots$

The point at which a function changes from increasing to decreasing is a relative $\qquad$ The point at which a function changes from decreasing to increasing is a relative
$\qquad$ -.

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

Example 2: Suppose a function $C$ represents the annual number of cases (in millions) of chicken pox reported for the year $x$ in the United States from 1960 through 2000. Interpret the meaning of the function's minimum at $(1998,3)$.

## IV. Graphing Step Functions and Piecewise-Defined Functions (Page 93)

Describe the graph of the greatest integer function.

> What you should learn How to identify and graph step functions and other piecewise-defined functions

Example 3: Let $f(x)=\llbracket x \rrbracket$, the greatest integer function. Find $f(3.74)$.

To sketch the graph of a piecewise-defined function, . . .

## V. Even and Odd Functions (Pages 94-95)

A graph is symmetric with respect to the $y$-axis if, whenever $(x, y)$ is on the graph, $\qquad$ is also on the graph. A graph

What you should learn How to identify even and odd functions is symmetric with respect to the $x$-axis if, whenever $(x, y)$ is on the graph, $\qquad$ is also on the graph. A graph is symmetric with respect to the origin if, whenever $(x, y)$ is on the graph, $\qquad$ is also on the graph.

A function whose graph is symmetric with respect to the $y$-axis is $\mathrm{a}(\mathrm{n})$ $\qquad$ function. A function whose graph is symmetric with respect to the origin is $\mathrm{a}(\mathrm{n})$ $\qquad$
function. The graph of a (nonzero) function cannot be symmetric with respect to the $\qquad$ .

## Additional notes





## Homework Assignment

Page(s)
Exercises

