

College Algebra Day 2

Sections 1.4 and 1.5

Types of Functions:

Constant

$f(x) = b$, where b is a real number

Discrete vs Continuous

Linear Functions

$f(x) = ax + b$, where a and b are real numbers.

Slope

Recognizing a Linear Function

From an equation

From a table of values

Example: Age in the United States p 54 # 36

Nonlinear Functions

Recognizing a Non-linear Function

From an equation

From a table of values

Popular non-linear functions. These are just a few of the basic functions you should know

$f(x) = x^2$, $f(x) = \sqrt{x}$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = |x|$

Increasing and decreasing Functions

Interval Notation.

Example: Use interval notation to determine the intervals where $f(x) = 1 - x^2$ is increasing or decreasing.

Average Rate of Change of a Function

Definition

Example: Find the average rate of change of f from x_1 to x_2 for the function $f(x) = \sqrt{2x^2 + 5x}$, for $x_1 = 1$ and $x_2 = 2$. Interpret the result graphically.

Example: Falling Objects p 66 # 61

Difference Quotients:

Definition:

Example: Find the difference quotient for the following functions

(a) $f(x) = 2x - 5$

(b) $f(x) = x^2 + 3x - 2$