

MTH 2316 – Algebra and Functions

Text: Algebra, Form and Function, 2nd edition

Authors: McCallum, Connally, Hughes-Hallett, et al.

Functions and Algebraic Structure

- 1.1 What is a Function?
- 1.2 Functions and Expressions
- 1.3 Functions and Equations
- 1.4 Functions and Change
- 1.5 Functions, Modeling, and Proportionality

Linear Functions

- 2.1 Introduction to Linear Functions
- 2.2 Linear Expressions
- 2.3 Linear Equations
- 2.4 Equations for Lines in the Plane
- 2.5 Modeling With Linear Functions
- 2.6 Systems of Linear Equations

Quadratic Functions

- 3.1 Introduction to Quadratic Functions
- 3.2 Quadratic Expressions
- 3.3 Converting to Factored and Vertex Form
- 3.4 Quadratic Equations
- 3.5 Factoring Hidden Quadratics
- 3.6 Complex Numbers

Power Functions

- 4.1 Power Functions: Positive Exponents
- 4.2 Power Functions: Negative and Fractional Exponents
- 4.3 Power Functions and Expressions
- 4.4 Power Functions and Equations
- 4.5 Modeling with Power Functions

More on Functions

- 5.1 Domain and Range
- 5.2 Composing and Decomposing Functions
- 5.3 Shifting and Scaling
- 5.4 Inverse Functions

Exponential Functions

- 6.1 Exponential Functions
- 6.2 Exponential Expressions: Growth Rates
- 6.3 Exponential Expressions: Half-Life and Doubling Time
- 6.4 Equations and Exponential Functions
- 6.5 Modeling with Exponential Functions
- 6.6 Exponential Functions and Base e

Logarithms

- 7.1 Introduction to Logarithms
- 7.2 Solving Equations Using Logarithms
- 7.3 Applications of logarithms to Modeling
- 7.4 Natural Logarithms and Other Bases

Polynomial Functions

- 8.1 Polynomial Functions
- 8.2 Expressions and Polynomial Equations
- 8.3 Solving Polynomial Equations
- 8.4 Long-Run Behavior of Polynomial Functions

Rational Functions

- 9.1 Rational Functions

Additional Topics Including

1st, 2nd, 3rd Order Differences

Strip diagrams

Algebra Tiles

Topics Related to Middle School Algebra