

Syllabus

Math 010 – Elementary Algebra

Textbook: Elementary Algebra (Sixth Edition), by Bittinger and Ellenbogen

Prerequisites: None

Calculators: None

Topics and sections to be covered:

- 1.1 Introduction to Algebra
- 1.2 The Commutative, Associative, and Distributive Laws
- 1.3 Fraction Notation
- 1.4 Positive and Negative Numbers
- 1.5 Addition of Real Numbers
- 1.6 Subtraction of Real Numbers
- 1.7 Multiplication and Division of Real Numbers
- 1.8 Exponential Notation and Order of Operations

- 2.1 Solving Equations
- 2.2 Using the Principles Together
- 2.3 Formulas
- 2.4 Applications with Percent
- 2.5 Problem Solving
- 2.6 Solving Inequalities
- 2.7 Solving Applications with Inequalities

- 3.1 Reading Graphs, Plotting Points, and Estimating Values
- 3.2 Graphing Linear Equations
- 3.3 Graphing and Intercepts
- 3.4 Rates
- 3.5 Slope
- 3.6 Slope-Intercept Form
- 3.7 Point-Slope Form

- 4.1 Exponents and Their Properties
- 4.2 Polynomials
- 4.3 Addition and Subtraction of Polynomials
- 4.4 Multiplication of Polynomials
- 4.5 Special Products (optional)
- 4.6 Polynomials in Several Variables
- 4.7 Division of Polynomials
- 4.8 Negative Exponents and Scientific Notation

- 5.1 Introduction to Factoring
- 5.2 Factoring Trinomials of the Type x^2+bx+c
- 5.3 Factoring Trinomials of the Type ax^2+bx+c
- 5.4 Factoring Perfect Square Trinomials and Differences of Squares
- 5.5 Factoring: A General Strategy
- 5.6 Solving Quadratic Equations by Factoring
- 5.7 Solving Applications

- 6.1 Rational Expressions
- 6.2 Multiplication and Division
- 6.3 Addition, Subtraction, and Least Common Denominators
- 6.4 Addition and Subtraction with Unlike Denominators
- 6.5 Complex Rational Expressions (optional)
- 6.6 Solving Rational Equations
- 6.7 Applications Using Rational Equations and Proportions

- 7.1 Systems of Equations and Graphing
- 7.2 Systems of Equations and Substitution
- 7.3 Systems of Equations and Elimination
- 7.4 More Applications Using Systems
- 7.5 Linear Inequalities in Two Variables
- 7.6 Systems of Linear Inequalities
- 7.7 Direct and Inverse Variation

- 8.1 Introduction to Square Roots and Radical Expressions
- 8.2 Multiplying and Simplifying Radical Expressions
- 8.3 Quotients Involving Square Roots
- 8.4 More Operations with Radicals
- 8.5 Radical Equations
- 8.6 Applications Using Right Triangles
- 8.7 Higher Roots and Rational Exponents (optional)

- 9.1 Solving Quadratic Equations: The Principle of Square Roots
- 9.2 Solving Quadratic Equations: Completing the Square (optional)
- 9.3 The Quadratic Formula and Applications
- 9.4 Formulas and Equations
- 9.5 Complex Numbers as Solutions of Quadratic Equations (optional)
- 9.6 Graphs of Quadratic Equations
- 9.7 Functions (optional)