

ALGEBRA II

This course builds on the concepts learned in Algebra I and extends them to include the solutions of systems of equations in two and three unknowns and inequalities and their graphic representation. Operations with complex numbers are studied and equations with imaginary roots are solved. Computation and applications are done with exponents and logarithms and work with polynomials includes synthetic division. The equations and graphs of the conic sections are also explored.

OBJECTIVES

1. To provide a more extensive and in-depth study of algebraic techniques and their applications to
problem solving;
2. To enable the students to solve any linear or quadratic equation and place its solution within the
framework of the structure of the number system;
3. To acquire the skills needed to graph equations and recognize equations from their graphs, and to
analyze and graph the conic sections; and
4. To encourage further development of analytic skills and logical thinking.

SCOPE

I. Simplifications

- A. Polynomials
- B. Fractions
- C. Radical expressions
- D. Zero, negative, and fractional exponents
- E. Complex numbers

II. Solving

- A. Linear systems of equations with two and three variables
- B. Word problems involving time, distance, money, age
- C. Absolute value equations and inequalities
- D. Fractional and decimal equations
- E. Quadratic equations by factoring, completing the square, and deriving and using the Quadratic formula
- F. Radical equations
- G. Systems of equalities and inequalities and linear programming

III. Graphing and analytic geometry

- A. Linear equations, parallel and perpendicular lines, distance, midpoint
- B. Functions and variations
- C. Conic section - parabola, circle, ellipse, hyperbola

- D. Linear inequalities
- IV. Scientific notation
- A. Expressing numbers in scientific form
 - B. Doing calculations in scientific form
- V. Logarithmic functions
- A. Definition and laws of logarithms
 - B. Computation using values on calculators
- VI. Graphing Calculator
- A. Graphing linear systems
 - B. Graphing parabolas and analyzing and finding vertex, x and y intercepts
 - C. Graphing quadratic equations and finding roots and maximum and minimum.

TEXT

Algebra II With Trigonometry, Foster, Winters, Gordon, Rath,
Merrill, Glencoe Publisher.