

NORTH ALLEGHENY SCHOOL DISTRICT

MATHEMATICS DEPARTMENT

ESSENTIALS OF ALGEBRA 2 (PART 2)

COURSE NUMBER: 3304

Units of Credit: 1 Course length: 184 days
Instructors: Mr. Bob Bell (rbell@northallegHENY.org)

Essentials of Algebra 2 (Part 2) Syllabus

Course Overview

This course is the fifth course of the Essentials sequence. The Algebra strand of this course includes topics arranged around family of functions including polynomial, radical, exponential, logarithmic, and rational. Other topics include systems of equations, an introduction to trigonometry, and conic sections. Essentials of Algebra 2 (Part 2) provides instruction and practice on standardized test questions in a variety of formats including multiple choice, short response, and extended response. Technology support for both learning Algebra 2 and preparing for standardized tests is available at www.classzone.com.

Textbook

Larson, Ron. Algebra 2: Concepts and Skills. Boston: McDougal Littell, 2008.

Course Outline

The following topics are covered in ESSENTIALS OF ALGEBRA 2 (PART 2):

Chapter 5: Quadratic Functions and Factoring

- Graphing Quadratic Functions in Standard Form
- Graphing Quadratic Functions in Vertex or Intercept Form
- Factoring $x^2 + bx + c$
- Factoring $ax^2 + bx + c$
- Factoring Using Special Patterns
- Solving Quadratic Equations by Finding Square Roots
- The Quadratic Formula and the Discriminant

Chapter 6: Polynomials and Polynomial Equations

- Properties of Exponents
- Polynomial Functions and Their Graphs
- Adding and Subtracting Polynomials
- Multiplying and Dividing Polynomials
- Factoring Cubic Polynomials

Chapter 7: Powers, Roots, and Radicals

- n th Roots and Rational Exponents
- Properties of Rational Exponents
- Solving Radical Equations
- Function Operations and Composition of Functions
- Inverse Functions
- Graphing Square Root and Cube Root Functions

Chapter 8: Exponential and Logarithmic Functions

- Exponential Growth
- Exponential Decay
- Modeling with Exponential Functions
- Logarithms and Logarithmic Functions
- Properties of Logarithms
- Solving Exponential and Logarithmic Equations

Chapter 9: Rational Equations and Functions

- Inverse and Joint Variation
- Graphing Rational Functions
- Simplifying and Multiplying Rational Expressions
- Dividing Rational Expressions
- Adding and Subtracting Rational Expressions
- Solving Rational Equations

Chapter 11: Discrete Mathematics

- Sequences and Series

Expected Levels of Student Achievement

Course grades will be determined by the collective point totals from assessments, homework, classroom projects/participation and standardized test preparation assignments. It is expected that all students will participate in daily classroom activities and maintain a notebook. Students must complete all assigned work and participate in class discussion.

Technology

Students are expected to continue to grow in their use of technology. Students are expected to obtain a graphics calculator. We recommend purchasing from the Texas Instruments TI-84 family of calculators. Students are expected to access online resources and grades.

Standard Test Preparation

The North Allegheny Mathematics Curriculum is designed to prepare students for standardized tests while meeting Pennsylvania State Mathematics Standards and Eligible Content. The focus will be on numbers and operations, algebraic concepts, geometry, data analysis and probability, and measurement. Students will be expected to complete Open Ended tasks throughout the course.