

ALGEBRA II

TEXT

Algebra II: Applications, Equations, and Graphs

PREREQUISITES

Algebra I
Geometry

OBJECTIVES

- Review and expand previous mathematics/algebra skills
- Practice and retain more advanced algebraic skills such as more advanced work with polynomials, concepts of graphing, methods of solving linear systems, finding rational zeros, the nature of inequalities, absolute value, rational equations and functions, inverse relations, and real life uses of distance and mid-point formulas.
- Specifically explore basic forms of relationships such as functions, correlation with best-fitting lines and statistics related to these, and piecewise functions.
- Recognize equations for and graph circles, hyperbolas, and ellipses.
- Integrate algebra with some concepts of analytic geometry, such as use of matrices in Cramer's Law, some sequencing series, and (when time allows) probability and statistics
- Introduction and experience working with extended exponential properties and their relationships to real-life uses. Develop and utilize, individualized note-taking methods or workable alternatives
- Experience work in higher levels of cognition while receiving coaching that adapts these materials to special needs of individual thinking and processing
- Connect algebraic logic and methods to real life applications

CONTENT

An investigation of the properties of mathematical forms such as: numbers, linear, quadratic and cubic equations and graphing, inequalities, including factors and functional relationships, solutions of systems, properties of exponents, algebraic word problems, complex numbers, polynomials and their functions, rational and radical numbers, and data analysis.

SKILLS

- Review and enlarge order of operations
- Develop and utilize individualized note taking
- Develop cooperative learning techniques while distinguishing between these and the demonstration of individual mastery
- Recognize ones own distinct learning styles
- Develop efficient information retrieval from an upper level mathematics textbook
- Validate and specify test preparation study skills
- Further individuals' knowledge of and modifications for personal learning styles
- Examine and use some specific tactics for improving test-taking skills

METHODS

Brief lecture and classroom discussion followed by individual/team problem solving format. Students may be participants in developing their own approaches to material through flexible timing as concerns assigned work. Demonstration of learning and understanding of concepts will be through successful completion of tests and quizzes. Much of each class period is set aside for daily work in cooperative groups, individual instruction by the teacher and peer tutors, and structured, formal peer tutoring.

HOMEWORK

Students are responsible for completing assignments that cannot be completed during class time. In addition, students may resubmit daily work, once, for an opportunity to demonstrate corrected comprehension. Finally, students are expected to learn preparation for quizzes and tests.

GRADING/CREDITS

Grades are based on test, quiz, and daily assignment scores. Small bonus challenges are available for students demonstrating advanced comprehension and eagerness to achieve at higher levels. To obtain credit, all chapters must be completed at or above the 60th percentile. To pas the course at accepted of a pre-college level, a student must pass each unit test and attain a score of 66% or higher.

INDIVIDUALIZATION

As much individual instruction as possible will be given to students, both in and outside of the classroom, to meet student needs. Students may "challenge" a chapter should they feel their learning is sufficient to move faster than the body of the class. A grade of 78% or higher must be achieved in order to earn credit for a challenged chapter. Contractual arrangements between a student and the teacher are flexible, but always include some practice work and individual demonstration of mastery. Agreed upon preparatory work will emphasize developing academic patterns of useful study skills.

ABSENCES/TARDIES

Students are responsible for all assignments, information from classroom presentations, and completion of quizzes or exams including those given when the student is absent or tardy.