Algebra I

Pre-Requisites: M/J Math II Advanced or M/J Pre-Algebra
Credits: 0.5 (per segment)
Estimated Completion Time: 2 segments / 32-36 weeks
Earliest Start Date: March 2014

Description

Algebra I is the foundation—the skills acquired in this course contain the basic knowledge needed for all future high school math courses. The material covered in this course is important, but everyone can do it. Anyone can have a good time solving the hundreds of real-world problems algebra can help answer.

Each module in this course is presented in a step-by-step way right on the computer screen. Hands-on labs make the numbers, graphs, and equations more real. The content in this course is tied to real-world applications like sports, travel, business, and health.

This course is designed to give students the skills and strategies to solve all kinds of mathematical problems. Students will also acquire the confidence needed to handle everything high school math has in store for them.

Major Topics and Concepts

Segment 1

Expressions

- Operations with Integers
- Order of operations
- Algebraic Expressions
- Simplifying Expressions Using the Distributive Property
- Translations

Equations

- Algebraic Properties and One-Step Equations Solving Two-Step Equations
- Solving Equations with Variables on Both Sides Word Problems
- Solving Equations with Fractions
- Literal Equations

Relations and Functions

- Venn Diagrams and Sets
- Union and Intersection of Sets
- Complement and Cross Product
- Relations and Functions
- Evaluating Functions

Linear Equations

- Slope
- X and Y Intercepts
- Slope-Intercept Form
- Horizontal and Vertical Lines
- Point-Slope Form
- Parallel and Perpendicular Lines
- Scatter Plots and Lines of Best Fit

Inequalities

- Solving Inequalities
- Compound Inequalities
- Graphing Inequalities in Two Variables
- Inequalities Activity

Segment 2

Systems of Equations

- Solving Systems of Equations by: Graphing, Substitution, and Elimination
- Applications of Systems
- Graphing Systems of Inequalities

Polynomials

- Addition, Subtraction, Multiplication and Division of Polynomials
- Special Products

Factoring

- Greatest Common Factor
- Factoring by Grouping
- Factoring Trinomials
- Perfect Square Trinomials
- Difference of Squares

Quadratic Equations

- Quadratic Equations: Solving Quadratic Equations by Factoring and Using the Quadratic Formula
- Graphical Parts of Quadratics Honors Only
- Solving Real-World Problems Involving Quadratics
- Using Graphing Technology

Radical Expressions

- Simplifying Algebraic Ratios and Proportions
- Simplifying Radical Expressions

Required Materials

Course Objectives

Grading Policy

Besides engaging students in challenging curriculum, the course guides students to reflect on their learning and evaluate their progress through a variety of assessments. Assessments can be in the form of practice lessons, multiple choice questions, writing assignments, projects, research papers, oral assessments, and discussions. The course will use the state-approved grading scale and each course contains a unique end of course assessment. This assessment counts for 20% of the student's overall grade and must be passed with a score of 60% or higher.

Communication Policy

To achieve success, students are expected to submit work in each course weekly. Students can learn at their own pace; however, "any pace" still means that students must make progress in the course every week. To measure learning, students complete self-checks, practice lessons, multiple choice questions, projects, discussion-based assessments, and discussions. Students are expected to maintain regular contact with teachers; the minimum requirement is monthly. When teachers, students, and parents work together, students are successful