

Rationale

Algebra I is a critical element in secondary mathematics education. Topics introduced in Algebra I provide the foundation the student requires for future success in high school mathematics, critical thinking, and problem solving. The primary goal in Algebra I is to help the student transfer concrete mathematical knowledge and abstract algebraic generalizations to their future career. In this way, the student will be expected to achieve mastery of Algebra I before moving on to the next math course, providing the best opportunity for success for every student.

Course Description

This course will develop logical mathematical thought through the use of variables, algebraic properties, and their connection to real world situations. The course will primarily explore solving and graphing equations and inequalities of functions. Algebra skills will be developed to support these investigations. Patterns, probabilities, number sense, and relationships to real world situations will also be incorporated throughout the course. The student should have mastered integer operations, rational number operations, order of operations, and solving one-step and two-step equations on one variable. Calculators will be used when appropriate.

Prerequisites

Prerequisite: Current teacher approval.

Open to: 9 grade only or 10, 11, 12 with departmental approval

Credit: 1 Unit - Two Semesters (Math)

The successful completion of this course will give the student one unit of math credit towards his/her state required three units needed for high school graduation.

Course Objectives

1. The student will extend their knowledge of rational and irrational numbers by using symbolic, graphic and numeric representations as they simplify expressions and solve equations and inequalities with 80% accuracy. CLE: MA, Algebra 1, Numbers and Operations, 1A, 1B, 1C, 2B, 2D, 3D, 3E. MLG: Algebra 1, Core Content C. Assessed on End of Course Exam, Algebra 1. (MA1, MA5; 1.6, 1.10, 3.2, 3.3)
2. The student will read word problems and apply algebraic concepts to real life situations with 80% accuracy. CLE: MA, Algebra I, Algebraic Relationships, 2A. Assessed on End of Course Exam, Algebra 1. (MA4; 3.3) (A+: Reading)
3. The student will use tables, graphs, and verbal and symbolic rules to describe patterns, relations, and linear, quadratic, and exponential functions with 80% accuracy. CLE: MA, Algebra I, Algebraic Relationships, 1B, 1C, 1D, 1E, 2A, 2B, 2C, 2D, 3A, 4A. MLG: Algebra 1, Core Content A, B, C. Assessed on End of Course Exam, Algebra 1. (MA4; 1.6, 3.2, 3.3, 3.8)
4. The student will demonstrate knowledge of algebraic concepts by writing and solving equations and inequalities with 80% accuracy. CLE: MA, Algebra I, Algebraic Relationships, 2C. Assessed on End of Course Exam, Algebra 1. (MA4; 3.2) (A+: Writing)
5. The student will use geometric models with proportions with 80% accuracy. CLE: MA, Algebra I, Geometric and Spatial Relationships, 1A, 4A. Assessed on End of Course Exam, Algebra 1. (MA2; 3.3, 3.6)
6. The student will verbally explain solutions of algebraic problems with 80% accuracy. CLE: MA, Algebra I, Algebraic Relationships, 1C. Assessed Locally. MA4; 1.6) (A+: Speaking)
7. The student will make decisions about appropriate scales with graphical representations of data by using perimeter and area formulas and unit analysis to help set up proportions and other equations with 80% accuracy. CLE: MA, Algebra I, Measurement, 2D, 2E. Assessed on End of Course Exam, Algebra 1. (MA2, MA4; 1.7, 1.10)
8. The student will research algebraic topics and present the findings with 80% accuracy. CLE: MA, Algebra I, Algebraic Relationships, 1D. Assessed Locally. (MA4; 1.6) (A+: Research)
9. The student will work with scatter plots and functions to model two-variable, or bivariate, data with 80% accuracy. CLE: MA, Algebra I, Data and Probability, 1A, 1B, 2A, 2B, 3A. MLG: Algebra 1, Core Content D. Assessed on End of Course Exam Algebra 1 (MA3, MA6; 1.2, 1.6, 1.8, 3.2, 3.5)

BOE 11/10/16

Algebra I

Mehlville School District
Mathematics
Grades 8 - 12, Duration 1 Year, 1 Credit