



Online Courses for High School Students
1-888-972-6237

Course Outline

Math A Semester 1

Course Description: This course, split into three semesters, integrates geometry, basic algebra, logic, and probability and statistics. The course will allow students to strengthen their mathematics skills which will enable them to take the Math A Regents Exam. The topics which will be taught include: basic algebra, operations with real numbers and polynomials, word problems, linear and equations of inequalities, geometry, coordinate geometry, quadratic equations, area, volume, Pythagorean Theorem, systems of equations, truth tables, transformations and locus, permutations, combinations, and probability and statistics. During Semester One, the topics covered will help students become familiar with algebraic expressions which become more in depth as the course goes on. Basic algebra, equations with word problems, geometry, and operations with real numbers and polynomials are a few topics that are necessary in order to complete Semester One. Other topics covered, such as, linear inequalities, coordinate geometry, quadratic equations, and the Pythagorean Theorem will guide the student into more complex problems which will be seen in Semester Two.

Course Outline:

Chapter 1 – Geometry: Congruent and Similar Polygons

- 1.1 The Order of Operations
- 1.2 Evaluating Algebraic Expressions
- 1.3 Evaluating with Exponents
- 1.4 The Distributive Property
- 1.5 Chapter 1 Quiz 1
- 1.6 Combining Like Terms

Chapter 2 - Signed Numbers

- 1.1 Introduction to Signed Numbers
- 1.2 Rules & Properties for Adding Signed Numbers
- 1.3 Chapter 2 Quiz 1
- 1.4 Subtracting Signed Numbers
- 1.5 Multiplying Signed Numbers
- 1.6 Dividing Signed Numbers

1.7 Combining Like Terms with Signed Number Coefficients

Chapter 3 - Polynomials

- 1.1 Products of Powers
- 1.2 Powers of Powers and of Products
- 1.3 Quotients of Powers
- 1.4 Zero and Negative Exponents
- 1.5 Scientific Notation
- 1.6 Simplifying Polynomials
- 1.7 Multiplying & Dividing a Polynomial by a Monomial

Chapter 4 - Equations & Word Problems Part 1

- 1.1 Linear Equations and Inequalities
- 1.2 Solving Equations with Variables on Each Side & with the Distributive Property
- 1.3 Lesson 4 - Quiz
- 1.4 Solving Fractional and Literal Equations

Chapter 5 - Equations & Word Problems Part 2

- 1.1 Solving Word Problems with Percent in Algebra
- 1.2 Word Problems in Geometry
- 1.3 Coin and Mixture Problems
- 1.4 Lesson 5 Quiz 1
- 1.5 Solving Problems Using Ratios and Proportions
- 1.6 Solving Problems of Direct Variation
- 1.7 Solving Problems Involving Averages

Chapter 6 - Inequalities

- 1.1 Graphing Inequalities on a Number Line
- 1.2 Properties of Inequalities
- 1.3 Solving Inequalities
- 1.4 Inequalities and Word Problems
- 1.5 Lesson 6 Quiz 1
- 1.6 Logic: Conjunction and Disjunction
- 1.7 Combining Inequalities
- 1.8 Logic: Negation and Conditionals 1.9 Accumulative Unit Quiz

Chapter 7 - Geometry: Angles

- 1.1 Angle Measurement, Points, Lines, and Planes
- 1.2 Adjacent Angles
- 1.3 Complementary Angles and Supplementary Angles
- 1.4 Lesson 7 - Quiz 1
- 1.5 Vertical Angles

Chapter 8 - Geometry: Parallels

1.1 Parallel Lines, Angles, and Skews

1.2 Determining Parallel Lines and its Theorems

1.3 Logic: Inverse and Contrapositive

1.4 The Sum of the Angle Measure of a Triangle

1.5 Exterior and Remote Interior Angles of a Triangle

Materials: None

Course Objectives:

Students will:

- Develop the following fundamental algebraic skills:
 - o Basic Algebra
 - o Operations with real numbers and polynomials
 - o Linear inequalities
 - o Coordinate geometry, quadratic equations, Pythagorean Theorem