

## Topics to be covered for Algebra 1

### 1. Course Description

Algebra 1 is the basic course in mathematics for students who are preparing for college. Its purpose is to develop the strategies and skills needed in problem solving. The use of the algebraic equation and graph and the scientific method of thought and notation are important tools to be used in achieving this goal. In addition this course has been designed to make mathematics accessible and inviting to the students and to help them prepare for tomorrow's world. This goal will be accomplished by involving students in exploring and discovering math concepts connecting algebra to the real world and to the concepts that will provide a strong foundation for future courses and careers.

The content and the teaching strategies in the text book, Algebra 1- New Jersey Edition published by Glencoe used in this course reflects the curriculum, teaching and assessment standards of the national council of teachers of mathematics.

The number enclosed in the following outline refer to the New Jersey Department of Education core curriculum content standards adopted July 2, 2008.

### 2. Course Proficiencies

- 2.1 Student will explore using variables to represent data. They will learn to write, evaluate and simplify variable expressions.
- 2.2 Students will perform operations with real numbers. They will display and analyze statistic data and find probabilities of simple events.
- 2.3 Student will explore data to determine whether a linear relationship exists. They will learn to represent a linear relationship as points on a coordinate plane and as an equation of a line.
- 2.4 Student will analyze how the equation and the graph of a line are related. They will extend their knowledge of linear graphing to inequality and systems of linear equations.
- 2.5 Student will be introduced to nonlinear functions. Students will learn about polynomials and operations involving monomials and polynomials.
- 2.6 Students will learn various methods of factoring and will be introduced to quadratic and exponential functions.
- 2.7 Student will be introduced to non-linear functions such as radical and rational equations.
- 2.8 Students learn how to simplify radical and rational expressions and how to solve equations involving these expressions.
- 2.9 Student will explore triangles through the Pythagorean theorem and trigonometric ratios.

### 3. Topical Outline

#### 3.1 First Quarter

3.1.1 The language of Algebra

3.1.2 Real numbers

3.1.3 Solving linear equations

#### 3.2 Second Quarter

3.2.1 Graphing relations and functions

3.2.2 Annoying linear equations

3.2.3 Solving linear equations

#### 3.3 Third Quarter

3.3.1 Solving systems of linear equations and inequalities

3.3.2 Polynomials

3.3.3 Factoring

#### 3.4 Fourth Quarter

3.4.1 Quadratic and exponential functions

3.4.2 Radical and rational functions

3.4.3 Rational Expressions and equations