Algebra COURSE DESCRIPTION

This Algebra course covers all typical Algebra material, over 80 topics in all from adding and subtracting positives and negatives to solving rational equations. Whether you are getting ahead of the curriculum, aiming for better grades, or preparing for the next level with deeper understanding of the concepts, this class will give you a solid foundations needed to succeed in school as the fundamental and important concepts will be taught in great details. Designed for all levels of learners from remedial to the advanced. (Material fee is due on the first day of class).

Homework: A page corresponds to each chapter lesson will be assigned. **Tests:** Chapter tests and exam at the end of course.

Chapter 1 - The Language of Algebra
Lesson 1 - Variables and Expressions
Lesson 2 - Order of Operations
Lesson 3 - Open Sentences
Lesson 4 - Identity and Equality Properties
Lesson 5 - The Distributive Property
Lesson 6 - Commutative and Associative Properties
Lesson 7 - Logical Reasoning
Lesson 8 - Graphs and Functions
Lesson 9 - Statistics: Analyzing Data by Using Tables and Graphs

Chapter 2 - Real Numbers
Lesson 1 - Rational Numbers on the Number Line
Lesson 2 - Adding and Subtracting Rational Numbers
Lesson 3 - Multiplying Rational Numbers
Lesson 4 - Dividing Rational Numbers
Lesson 5 - Statistics: Displaying and Analyzing Data -
Lesson 6 - Probability: Simple Probability and Odds
Lesson 7 - Square Roots and Real Numbers

Chapter 3 - Solving Linear Equations
Lesson 1 - Writing Equations
Lesson 2 - Solving Equations by Using Addition and Subtraction
Lesson 3 - Solving Equations by Using Multiplication and Division
Lesson 4 - Solving Multi-Step Equations
Lesson 5 - Solving Equations with the Variable on Each Side
Lesson 6 - Ratios and Proportion
Lesson 7 - Percent of Change
Lesson 8 - Solving Equations and Formulas
Lesson 9 - Weighted Averages

Chapter 4 - Graphing Relations and Functions
Lesson 1 - The Coordinate Plane
Lesson 2 - Transformations on the Coordinate Plane
Lesson 3 - Relations
Lesson 4 - Equations as Relations
Lesson 5 - Graphing Linear Equations
Lesson 6 - Functions
Lesson 7 - Arithmetic Sequences
Lesson 8 - Writing Equations from Patterns

Chapter 5 - Analyzing Linear Equations
Lesson 1 - Slope
Lesson 2 - Slope and Direct Variation
Lesson 3 - Slope-Intercept Form
Lesson 4 - Writing Equations in Slope-Intercept Form
Lesson 5 - Writing Equations in Point-Slope Form
Lesson 6 - Geometry: Parallel and Perpendicular Lines
Lesson 7 - Statistics: Scatter Plots and Lines of Fit

Chapter 6 - Solving Linear Inequalities
Lesson 1 - Solving Inequalities by Addition and Subtraction
Lesson 2 - Solving Inequalities by Multiplication and Division
Lesson 3 - Solving Multi-Step Inequalities
Lesson 4 - Solving Compound Inequalities
Lesson 5 - Solving Open Sentences Involving Absolute Value
Lesson 6 - Graphing Inequalities in Two Variables

Chapter 7 - Solving Systems of Linear Equations and Inequalities
Lesson 1 - Graphing Systems of Equations
Lesson 2 - Substitution
Lesson 3 - Elimination Using Addition and Subtraction
Lesson 4 - Elimination Using Multiplication
Lesson 5 - Graphing Systems of Inequalities

Chapter 8 - Polynomials
Lesson 1 - Multiplying Monomials
Lesson 2 - Dividing Monomials
Lesson 3 - Scientific Notation
Lesson 4 - Polynomials
Lesson 5 - Adding and Subtracting Polynomials
Lesson 6 - Multiplying a Polynomial by a Monomial
Lesson 7 - Multiplying Polynomials
Lesson 8 - Special Products

Chapter 9 - Factoring
Lesson 1 - Factors and Greatest Common Factors
Lesson 2 - Factoring Using the Distributive Property
Lesson 3 - Factoring Trinomials: $x2 + bx + c$
Lesson 4 - Factoring Trinomials: $ax2 + bx + c$
Lesson 5 - Factoring Differences of Squares
Lesson 6 - Perfect Squares and Factoring

Chapter 10 - Quadratic and Exponential Functions
Lesson 1 - Graphing Quadratic Functions
Lesson 2 - Solving Quadratic Equations by Graphing
Lesson 3 - Solving Quadratic Equations by Completing the Square
Lesson 4 - Solving Quadratic Equations by Using the Quadratic Formula
Lesson 5 - Exponential Functions
Lesson 6 - Growth and Decay
Lesson 7 - Geometric Sequences

Chapter 11 - Radical Expressions and Triangles
Lesson 1 - Simplifying Radical Expressions
Lesson 2 - Operations with Radical Expressions
Lesson 3 - Radical Equations
Lesson 4 - The Pythagorean Theorem
Lesson 5 - The Distance Formula
Lesson 6 - Similar Triangles
Lesson 7 - Trigonometric Ratios

Chapter 12 - Rational Expressions and Equations
Lesson 1 - Inverse Variation
Lesson 2 - Rational Expressions
Lesson 3 - Multiplying Rational Expressions
Lesson 4 - Dividing Rational Expressions
Lesson 5 - Dividing Polynomials
Lesson 6 - Rational Expressions with Like Denominators
Lesson 7 - Rational Expressions with Unlike Denominators
Lesson 8 - Mixed Expressions and Complex Fractions
Lesson 9 - Solving Rational Equations and Inequalities