Algebraically Speaking…

Bringing Math Back to Life!
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Curriculum Used - Table of Contents
(and DVD Outline, if applicable)

Basic Math:

Traditional Set Reference Text: *Basic College Mathematics, 9th Edition* by Aufmann, Barker, Lockwood (Cengage Learning, 2010)

Basic Math 9th Ed DVD Outline

Disc 1 - 2 hours 53 min.

Chapter 1 - Whole Numbers
• 1.1 Introduction to Whole Numbers
• 1.2 Adding of Whole Numbers
• 1.3 Subtraction of Whole Numbers
• 1.4 Multiplication of Whole Numbers
• 1.5 Division of Whole Numbers
• 1.6 Exponential Notation and the Order of Operations Agreement

Disc 2 - 2 hours 28 min.

• 1.7 Prime Numbers and Factoring

Chapter 2- Fractions
• 2.1 The Least Common Multiple and Greatest Common Factor
• 2.2 Introduction to Fractions
• 2.3 Writing Equivalent Fractions
• 2.4 Addition of Fractions and Mixed Numbers
• 2.5 Subtraction of Fractions and Mixed Numbers
• 2.6 Multiplication of Fractions and Mixed Numbers
• 2.7 Division of Fractions and Mixed Numbers

- 8.2 Weight

<u>Disc 6</u> - 2 hours 38 min.

- 8.3 Capacity
- 8.4 Time
- 8.5 Energy and Power

Chapter 9- The Metric System of Measurement

- 9.1 Length
- 9.2 Weight
- 9.3 Capacity
- 9.4 Energy
- 9.5 Conversion Between the U.S. Customary and the Metric System of Measurement

Chapter 10- Rational Numbers

- 10.1 Introduction to Integers
- 10.2 Addition and Subtraction of Integers

<u>Disc 7</u> - 1 hour 52 min.

- 10.3 Multiplication and Division of Integers
- 10.4 Operations with Rational Numbers
- 10.5 Scientific Notation and the Order of Operations agreement

Chapter 11- Introduction to Algebra

- 11.1 Variable Expressions

<u>Disc 8</u> - 2 hours 3 min.

- 11.2 Introduction to Equations
- 11.3 General Equation: Part I
- 11.4 General Equation: Part II
- 11.5 Translating Verbal Expressions into Mathematical Expressions
- 11.6 Translating Sentences into Equations and Solving

Chapter 12- Geometry

- 12.1 Angles, Lines, and Geometric Figures

<u>Disc 9</u> - 2 hours 1 min.

- 12.2 Planes Geometric Figures
- 12.3 Area
- 12.4 Volume
- 12.5 The Pythagorean Theorem
- 12.6 Similar and Congruent Triangles

Pre-Algebra:

Traditional 5th ed. Set - DVD Outline

<u>Disc 1</u> - 2 hours 9 min.

Chapter 1- Whole Numbers
- 1.1 Introduction to Whole Numbers
- 1.2 Addition and Subtraction of Whole Numbers
- 1.3 Multiplication and Division of Whole Numbers

<u>Disc 2</u> - 2 hours

- 1.4 Solving Equations with Whole Numbers
- 1.5 The Order of Operations Agreement

Chapter 2- Integers
- 2.1 Introduction to Integers
- 2.2 Addition and Subtraction of Integers
- 2.3 Multiplication and Division of Integers
- 2.4 Solving Equations with Integers
- 2.5 The Order of Operations Agreement

<u>Disc 3</u> - 1 hour 57 min.

Chapter 3- Fractions

- 3.1 Least Common Multiple and Greatest Common Factor
- 3.2 Introduction to Fractions
- 3.3 Multiplication and Division of Fractions
- 3.4 Addition and Subtraction of Fractions

Disc 4 - 2 hours 17 min.

- 3.5 Solving Equations with Fractions
- 3.6 Exponents, Complex Fractions, and The Order of Operations Agreement

Chapter 4- Decimals and Real Numbers

- 4.1 Introduction to Decimals
- 4.2 Addition and Subtraction of Decimals
- 4.3 Multiplication and Division of Decimals

Disc 5 - 2 hours 4 min.

- 4.4 Solving Equations with Decimals
- 4.5 Radical Expressions
- 4.6 Real Numbers

Chapter 5- Variable Expressions

- 5.1 Properties of Real Numbers
- 5.2 Variable Expressions in Simplest Form
- 5.3 Addition and Substraction of Polynomials
- 5.4 Multiplication of Monomials
- 5.5 Multiplication of Polynomials

Disc 6 - 2 hours 12 min.

- 5.6 Division of Monomials
- 5.7 Verbal Expressions and Variable Expressions

Chapter 6- First Degree Equations

- 6.1 Equations of the form $x + a = b$ and $ax = b$
- 6.2 Equations of the form $ax + b = c$
- 6.3 General First-Degree Equations
- 6.4 Translating Sentences into Equations

Disc 7 - 1 hour 53 min.

- 6.5 The Rectangular Coordinate System
- 6.6 Graphs of Straight Lines

Chapter 7- Measurements and Proportion

- 7.1 The Metric System of Measurement
- 7.2 Ratios and Rates
- 7.3 The U.S. Customary System of Measurement

Disc 8 - 1 hour 58 min.

- 7.4 Proportion
- 7.5 Direct and Inverse Variation

Chapter 8- Percent
- 8.1 Percent
- 8.2 The Basic Percent Equation
- 8.3 Percent Increase and Percent Decrease

Disc 9 - 1 hour 59 min.

- 8.4 Markup and Discount
- 8.5 Simple Interest

Chapter 9- Geometry Part One
- 9.1 Introduction to Geometry
- 9.2 Plane Geometric Figures

Disc 10 - 2 hours 13 min.

- 9.3 Triangles
- 9.4 Solids

Chapter 10- Statistics and Probability
- 10.1 Organizing Data
- 10.2 Statistical Measures
- 10.3 Introduction to Probability

Algebra 1:

DVD Outline

Disc 1 - 2 hours 27 min.

Chapter 1- The Real Number System

- 1.1 Real Numbers: Order and Absolute Value
- 1.2 Adding and Subtracting Integers
- 1.3 Multiplying and Dividing Integers
- 1.4 Operations and Rational Numbers
- 1.5 Exponents, order of operations and properties of real number

Disc 2 - 2 hours 14 min.

Chapter 2- Fundamentals of Algebra

- 2.1 Writing and Evaluating Algebraic Expressions
- 2.2 Simplifying Algebraic Expressions
- 2.3 Algebra and Problem Solving
- 2.4 Introduction to Equations

Chapter 3- Linear Equations and Problem Solving

- 3.1 Solving Linear Equations
- 3.2 Equations that Reduce to Linear Form

Disc 3 - 1 hour 20 min.

- 3.3 Problem Solving with Percents
- 3.4 Ratios and Proportions

Disc 4 - 2 hours 23 min.

- 3.5 Geometric and Scientific Applications
- 3.6 Linear Inequalities

<u>Disc 5</u> - 2 hours 10 min.

Chapter 4- Equations and Inequalities in Two Variables

- 4.1 Ordered Pairs and Graphs
- 4.2 Graphs of Equations in Two Variables
- 4.3 Slope and Graphs of Linear Equations
- 4.4 Equations of Lines
- 4.5 Graphs of Linear Inequalities

Chapter 5- Exponents and Polynomials

- 5.1 Negative Exponents and Scientific Notation
- 5.2 Adding and Subtracting Polynomials

<u>Disc 6</u> - 2 hours 14 min.

- 5.3 Multiplying Polynomials: Special Products
- 5.4 Dividing Polynomials

Chapter 6- Factoring and Solving Equations

- 6.1 Factoring Polynomials with Common Factors
- 6.2 Factoring Trinomials
- 6.3 More About Factoring Trinomials
- 6.4 Factoring Polynomials with Special Forms

<u>Disc 7</u> - 2 hours 9 min.

- 6.5 Solving Quadratic Equations by Factoring

Chapter 7- Rational Expressions and Equations

- 7.1 Simplifying Rational Expressions
- 7.2 Multiplying and Dividing Rational Expressions
- 7.3 Adding and Subtracting Rational Expressions
- 7.4 Complex Fractions
- 7.5 Rational Equations and Applications

Chapter 8- System of Linear Equations

- 8.1 Solving Systems of Equations by Graphing

<u>Disc 8</u> - 2 hours 13 min.

- 8.2 Solving Systems of Equations by Substitution

- 8.3 Solving Systems of Equations of Linear Equations
- 8.4 Applications of Systems of Linear Equations
- 8.5 Systems of Linear Inequalities

Chapter 9- Radical Expressions and Equations

- 9.1 Roots and Radicals
- 9.2 Simplifying Radicals

Disc 9 - 1 hour 32 min.

- 9.3 Operations with Radical Expressions
- 9.4 Radical Equations and Applications

Chapter 10- Quadratic Equations and Functions

- 10.1 Solution by the square root property
- 10.2 Solution by Completing the Square

Disc 10 - 2 hours 30 min.

- 10.3 Solution by the Quadratic Formula
- 10.4 Graphing Quadratic Equations
- 10.5 Applications of Quadratic Equations
- 10.6 Complex Numbers
- 10.7 Relations, Functions, and Graphs

Geometry:

Reference Text: *Geometry*
by Larson, Boswell, Kanold, Stiff

(McDougal Littell, 2007)

Chapter 1- Essentials of Geometry
- 1.1 Identify Points, Lines, and Planes
- 1.2 Use Segments and Congruence
- 1.3 Use Midpoints and Distance Formulas
- 1.4 Measure and Classify Angles
- 1.5 Describe Angle Pair Relationships
- 1.6 Classify Polygons
- 1.7 Find Perimeter, Circumference, and Area

Chapter 2- Reasoning and Proof
- 2.1 Use Inductive Reasoning
- 2.2 Analyze Conditional Statements
- 2.3 Apply Deductive Reasoning
- 2.4 Use Postulates and Diagrams
- 2.5 Reason Using Properties from Algebra
- 2.6 Prove Statements about Segments and Angles
- 2.7 Prove Angle Pair Relationships

Chapter 3- Parallel and Perpendicular Lines
- 3.1 Identify Pairs of Lines and Angels
- 3.2 Use Parallel Lines and Transversals
- 3.3 Prove Lines are Parallel
- 3.4 Find and Use Slopes of Lines
- 3.5 Write and Graph Equations of Lines
- 3.6 Prove Theorems about Perpendicular Lines

Chapter 4- Congruent Triangles
- 4.1 Apply Triangle Sum Properties
- 4.2 Apply Congruence and Triangles
- 4.3 Prove Triangles Congruent by SSS
- 4.4 Prove Triangles Congruent by SAS and HL
- 4.5 Prove Triangles Congruent by ASA and AAS
- 4.6 Use Congruent Triangles
- 4.7 Use Isosceles and Equilateral Triangles
- 4.8 Perform Congruence Transformations

Chapter 5- Relationships within Triangles

- 5.1 Midsegment Theorem and Coordinate Proof
- 5.2 Use Perpendicular Bisector
- 5.3 Use Angle Bisectors of Triangles
- 5.4 Use Medians and Altitudes
- 5.5 Use Inequalities in a Triangle
- 5.6 Inequalities in Two Triangles and Indirect Proof

Chapter 6- Similarity

- 6.1 Ratios, Proportions, and the Geometric Mean
- 6.2 Use Proportions to Solve Geometry Problems
- 6.3 Use Similar Polygons
- 6.4 Prove Triangles Similar by AA
- 6.5 Prove Triangles Similar by SSS and SAS
- 6.6 Use Proportionality Theorems
- 6.7 Perform Similarity Transformations

Chapter 7- Right Triangles and Trigonometry

- 7.1 Apply the Pythagorean Theorem
- 7.2 Use the Converse of the Pythagorean Theorem
- 7.3 Use Similar Right Triangles
- 7.4 Special Right Triangles
- 7.5 Apply the Tangent Ratio
- 7.6 Apply the Sine and Cosine Ratios
- 7.7 Solve Right Triangles

Chapter 8- Quadrilaterals

- 8.1 Find Angle Measures in Polygons
- 8.2 Use Properties of Parallelograms
- 8.3 Show that a Quadrilateral is a Parallelogram
- 8.4 Properties of Rhombuses, Rectangles, and Squares
- 8.5 Use Properties of Trapazoids and Kites
- 8.6 Identify Special Quadrilaterals

Chapter 9- Properties of Transformations

- 9.1 Translate Figures and Use Vectors
- 9.2 Use Properties of Matrices
- 9.3 Perform Reflections
- 9.4 Perform Rotations

Algebra 2:

DVD Outline

Disc 1 - 2 hours 8 min.

Chapter 1 - Fundamentals of Algebra
- 1.1 The Real Number System
- 1.2 Operations with Real Numbers
- 1.3 Properties of Real Numbers
- 1.4 Algebraic Expressions
- 1.5 Constructing Algebraic Expressions

Chapter 2 - Linear Equations and Inequalities
- 2.1 Linear Equations

Disc 2 - 2 hours 8 min.

- 2.2 Linear Equations and Problem Solving
- 2.3 Business and Scientific Problems
- 2.4 Linear Inequalities

Disc 3 - 2 hours 13 min.

- 2.5 Absolute Value Equations and Inequalities

Chapter 3 - Graphs and Functions
- 3.1 The Rectangular Coordinate System
- 3.2 Graphs and Equations
- 3.3 Slope and Graphs of Linear Equations
- 3.4 Equations of Lines
- 3.5 Graphs of Linear Equations

Disc 4 - 2 hours 5 min.

- 3.6 Relations and Functions
- 3.7 Graphs and Functions

Chapter 4 - Systems of Equations and Inequalities
- 4.1 Systems of Equations
- 4.2 Linear Systems in Two Variables

<u>Disc 5</u> - 2 hours 9 min.

- 4.3 Linear Systems in Three Variables
- 4.4 Matrices and Linear Systems
- 4.5 Determinants and Linear Systems
- 4.6 Systems of Linear Inequalities

<u>Disc 6</u> - 2 hours 11 min.

Chapter 5 - Polynomials and Factoring

- 5.1 Integer Exponents and Scientific Notation
- 5.2 Adding and Subtracting Polynomials
- 5.3 Multiplying Polynomials
- 5.4 Factoring by Grouping and Special Forms
- 5.5 Factoring Trinomials

<u>Disc 7</u> - 2 hours 17 min.

- 5.6 Solving Polynomial Equations by Factoring

Chapter 6 - Rational Expressions, Equations, and Functions

- 6.1 Rational Expressions and Functions
- 6.2 Multiplying and Dividing Rational Expressions
- 6.3 Adding and Subtracting Rational Expressions
- 6.4 Complex Fractions
- 6.5 Dividing Polynomials and Synthetic Division
- 6.6 Solving Rational Equations

<u>Disc 8</u> - 2 hours 6 min.

- 6.7 Applications and Variation

Chapter 7- Radicals and Complex Numbers

- 7.1 Radicals and Rational Exponents
- 7.2 Simplifying Radical Expressions
- 7.3 Adding and Subtracting Radical Expressions
- 7.4 Multiplying and Dividing Radical Expressions
- 7.5 Radical Equations and Applications

<u>Disc 9</u> - 1 hour 45 min.

- 7.6 Complex Numbers

Chapter 8- Quadratic Equations, Functions, and Inequalities

- 8.1 Solving Quadratic Equations: Factoring and Special Forms
- 8.2 Completing the Square
- 8.3 The Quadratic Formula

<u>Disc 10</u> - 2 hours 12 min.

- 8.4 Graphs of Quadratic Functions
- 8.5 Applications of Quadratic Equations
- 8.6 Quadratic and Rational Inequalities

Chapter 9- Exponential and Logarithmic Functions

- 9.1 Circles and Parabolas

<u>Disc 11</u> - 2 hours 16 min.

- 9.2 Composite and Inverse Functions
- 9.3 Logarithmic Functions
- 9.4 Properties of Logarithms
- 9.5 Solving Exponential and Logarithmic Equations

<u>Disc 12</u> - 2 hours 18 min.

- 9.6 Applications

Chapter 10- Conics

- 10.1 Circles and Parabolas
- 10.2 Ellipses
- 10.3 Hyperbolas

<u>Disc 13</u> - 1 hour 56 min.

- 10.4 Solving Nonlinear Sysytems of Equations

Chapter 11- Sequences, Series, and the Binomial Theorem

- 11.1 Sequences and Series
- 11.2 Arithmetic Sequences
- 11.3 Geometric Sequences and Series
- 11.4 The Binomial Theorem

Algebra 3/Trigonometry:

Reference Text: *Algebra and Trigonometry, Seventh Edition*
by Larson and Robert Hostetler. (Houghton Mifflin Company, 2007)

DVD Outline

Disc 1

Chapter P-Prerequisites
- P.1 Review of Real Numbers and Their Properties
- P.2 Exponents and Radicals
- P.3 Polynomials and Special Products
- P.4 Factoring Polynomials
- P.5 Rational Expressions
- P.6 Errors and the Algebra of Calculus
- P.7 The Rectangular Coordinate System and Graphs

Chapter 1- Equations, Inequities, and Mathematical Modeling
- 1.1 Graphs of Equations

Disc 2

Chapter 1- Equations, Inequities, and Mathematical Modeling
- 1.2 Linear Equations in One Variable
- 1.3 Modeling with Linear Equations
- 1.4 Quadratic Equations and Applications
- 1.5 Complex Numbers
- 1.6 Other Types of Equations
- 1.7 Linear Inequalities in One Variable
- 1.8 Other Types of Inequalities

Chapter 2- Functions and Their Graphs
- 2.1 Linear Equations in Two Variables

Disc 3

Chapter 2- Functions and Their Graphs
- 2.2 Functions
- 2.3 Analyzing Graphs of Functions
- 2.4 A Library of Parent Functions
- 2.5 Transformations of Functions
- 2.6 Combinations of Functions: Composite Functions
- 2.7 Inverse Functions

Chapter 3- Polynomial Functions
- 3.1 Quadratic Functions and Models
- 3.2 Polynomial Functions of Higher Degree
- 3.3 Polynomial and Synthetic Division

Disc 4

Chapter 3- Polynomial Functions
- 3.4 Zeros of Polynomial Functions
- 3.5 Mathematical Modeling and Variation

Chapter 4- Rational Functions and Conics
- 4.1 Rational Functions and Asymptotes
- 4.2 Graphs of Rational Functions
- 4.3 Conics
- 4.4 Translations of Conics

Disc 5

Chapter 5- Exponential and Logarithmic Functions
- 5.1 Exponential Functions and Their Graphs
- 5.2 Logarithmic Functions and Their Graphs
- 5.3 Properties of Logarithms
- 5.4 Exponential and Logarithmic Equations
- 5.5 Exponential and Logarithmic Models

Disc 6

Chapter 6- Trigonometry

- 6.1 Angles and Their Measure
- 6.2 Right Triangle Trigonometry