Common Core Algebra I Syllabus

Chapter 1 – Foundations for Algebra (Review)

1-1 Variables and Expressions
1-2 Order of Operations and Evaluating Expressions
1-3 Real Numbers and the Number Line
1-4 Properties of Real Numbers
1-5 Adding and Subtracting Real Numbers
1-6 Multiplying and Dividing Real Numbers
1-7 The Distributive Property
1-8 An Introduction to Equations
1-9 Patterns, Equations, and Graphs

Chapter 2 – Solving Equations

2-1 Solving One-Step Equations
2-2 Solving Two-Step Equations
2-3 Solving Multi-Step Equations
2-4 Solving Equations With Variables on Both Sides
2-5 Literal Equations and Formulas

Chapter 3 – Solving Inequalities

3-1 Inequalities and Their Graphs
3-2 Solving Inequalities Using Addition and Subtraction
3-3 Solving Inequalities Using Multiplication and Division
3-4 Solving Multi-Step Inequalities
3-5 Working With Sets
3-6 Compound Inequalities
3-7 Absolute Value Equations and Inequalities
3-8 Unions and Intersections of Sets

Chapter 2 – Solving Equations (Continued)

2-6 Ratios, Rates, and Conversions
2-7 Solving Proportions
2-8 Proportions and Similar Figures
2-9 Percents
2-10 Change Expressed as a Percent

Chapter 4 – An Introduction to Functions

4-1 Using Graphs to Relate Two Quantities
4-2 Patterns and Linear Functions
4-3 Patterns and Nonlinear Functions
4-4 Graphing a Function Rule
4-5 Writing a Function Rule
4-6 Formalizing Relations and Functions
4-7 Arithmetic Sequences

Chapter 5 – Linear Functions

5-1 Rate of Change and Slope
5-2 Direct Variation
5-3 Slope-Intercept Form
5-4 Point-Slope Form
5-5 Standard Form
5-6 Parallel and Perpendicular Lines
5-7 Scatter Plots and Trend Lines
5-8 Graphing Absolute Value Functions

Chapter 6 – Systems of Equations and Inequalities

6-1 Solving Systems by Graphing
6-2 Solving Systems Using Substitution
6-3 Solving Systems Using Elimination
6-4 Applications of Linear Systems
6-5 Linear Inequalities
6-6 Systems of Linear Inequalities

Chapter 7 – Exponents and Exponential Functions

7-1 Aero and Negative Exponents
7-2 Multiplying Powers With the Same Base
7-3 More Multiplication Properties of Exponents
7-4 Division Properties of Exponents
7-5 Rational Exponents and Radicals
7-6 Exponential Functions
7-7 Exponential Growth and Decay
7-8 Geometric Sequences

Chapter 8 – Polynomials and Factoring

8-1 Adding and Subtracting Polynomials
8-2 Multiplying and Factoring
8-3 Multiplying Binomials
8-4 Multiplying Special Cases
8-5 Factoring $x^2 + bx + c$
8-6 Factoring $ax^2 + bx + c$
8-7 Factoring Special Cases
8-8 Factoring by Grouping

Chapter 9 – Quadratic Functions and Equations

9-1 Quadratic Graphs and Their Properties
9-2 Quadratic Functions
9-3 Solving Quadratic Equations
9-4 Factoring to Solve Quadratic Equations
9-5 Completing the Square
9-6 The Quadratic Formula and the Discriminant
9-7 Linear, Quadratic, and Exponential Models
9-8 Systems of Linear and Quadratic Equations

Chapter 10 – Radical Expressions and Equations

10-1 The Pythagorean Theorem
10-2 Simplifying Radicals
10-3 Operations with Radical Expressions
10-4 Solving Radical Equations
10-5 Graphing Square Root Functions
10-6 Trigonometric Ratios

If time permits, we will complete the following chapters:

Chapter 11 – Rational Expressions and Functions

11-1 Simplifying Rational Expressions
11-2 Multiplying and Dividing Rational Expressions
11-3 Dividing Polynomials
11-4 Adding and Subtracting Rational Expressions
11-5 Solving Rational Equations
11-6 Inverse Variation
11-7 Graphing Rational Functions

Chapter 12 – Data Analysis and Probability

12-1 Organizing Data Using Matrices
12-2 Frequency and Histograms
12-3 Measures of Central Tendency and Dispersion
12-4 Box-and-Whisker Plots
12-5 Samples and Surveys
12-6 Permutations and Combinations
12-7 Theoretical and Experimental Probability
12-8 Probability of Compound Events