Pre-Algebra (7th Grade)

1. Integers and Rational Numbers

1.1 Definition of Integers

1.1.1 Graphing Integers; Finding the Opposite of an Integer; and Comparing Two Integers

1.1.2 Finding the Absolute Value of an Integer

1.2 Operations on Integers

1.2.2 Adding and Subtracting Integers

1.2.2 Multiply and Divide Two Integers With Like and Unlike Signs

1.3 Fractions and decimals

1.3.1 Proper and Improper Fractions

1.3.2 Improper Fractions and Mixed Numbers

1.3.3 Determining Place Values in Decimals

1.3.4 Listing Decimals in Order

1.3.5 Converting Decimals to Fractions

1.4 Rational Numbers

1.4.1 Rational Numbers

1.4.2 Equivalent Rational Numbers

1.4.3 Rational Numbers on Number Line

1.4.4 Standard form of Rational Numbers

1.4.5 Comparison of Rational Numbers

1.5 Operations on Rational Numbers

1.5.1 Addition of Rational Numbers

1.5.2 Subtraction of Rational Numbers

1.5.3 Multiplication of Rational Numbers

1.5.4 Dividing Rational Numbers

1.6 Irrational Numbers and Square Roots

1.6.1 Irrational Numbers

1.6.2 Simplifying Square Roots

1.7 Cube Roots

1.7.1 Cube Root

2. Exponents

2.1 Exponents

2.1.1 Exponents, and Product Rule

2.1.2 Power Rules for Exponents

2.2 Integer Exponents

2.2.1 Negative Exponents

2.2.2 Quotient Rule for Integer Exponents

2.3 Scientific Notation

2.3.1 Express Numbers in Scientific Notation and Conversion

2.3.2 Application: Using Scientific Notations

3. Equations

3.1 Algebraic Expressions

3.1.1 Identifying and Combining Like Terms

3.1.2 Simplifying Expressions

3.1.3 Build Expressions from Word Phrases

3.1.4 Evaluate Expressions for given Value of Variable

3.2 One-Step Equations

3.2.1 Solve One-Step Equations, Adding and Subtracting

3.2.2 Solve One-Step Equations, Multiplying and Dividing

3.3 Solving Two-Step Equations

3.3.1 Solving Two-Step Equations

3.4 Solving Multi-Step Equations

3.4.1 Solving Multi-Step Equations

3.4.2 Solve Equations with Fractions and Decimals

3.5 Solving Equations with Variables on Both Sides

3.5.1 Use Distributive Property to Solve Equations

3.5.2 Solve General Linear Equations

3.5.3 Equations with No Solutions or many Solutions

4. Inequalities

4.1 Graphing and Writing Inequalities

4.1.1 Intervals and Their Graphs

4.2 Solving Inequalities by Adding and Subtracting

4.2.1 Addition Property of Inequality

4.3 Solving Inequalities by Multiplying or Dividing

4.3.1 Multiplication Property of Inequality

4.4 Solving Two Steps Inequalities

4.4.1 Solving Linear Inequalities

5. Ratios, Rates, and Proportions

5.1 Find Fraction Notation for a Ratio or a Rate

5.1.1 Converting Ratios/Rates to Fraction

5.1.2 Converting Rates to Unit Rates

5.2 Solving Proportions
5.2.1 Checking and Solving Proportions
5.2.2 Solving Applications Using Proportions
5.3 Similar Figures
5.3.1 Find the Missing side(s) in Similar Figures
6. Percents
6.1 Percents, Conversion to Decimals and Fractions
6.1.1 Understanding Percents
6.1.2 Convert Percent - Fraction - Decimal
6.2 Percent Problems using Percent Equations/ Proportions
6.2.1 Solve Problems Using the Percent Proportion/Formula
6.2.2 Application Problems
6.3 Simple Interest
6.3.1 Applications involving Simple Interest, using the Formula I=Prt
7. Introduction to Functions
7.1 Relations and Functions
7.1.1 Introduction to Relations
7.1.2 Introduction to Functions
7.1.3 Graph of a Function
7.2 Functions
7.2.1 Definition of a Function
7.2.2 Some Elementary Functions
7.2.3 Finding the Value of a Function
7.3 Domain, Range, and Operations on Functions
7.3.1 Domain and Range of a Function
7.3.2 The Basic Operations on Functions
7.3.3 Composite Functions
7.4 Graphical Representation of a Function
7.4.1 A Numerical Form of a Function
7.4.2 The Graph of a Function, Interpretation, Vertical Line Test
7.5 Distance And Slope
7.5.1 The Distance between two points
7.5.2 The Midpoint of a line segment
7.5.3 The Slope of a line
8. Geometry and Area
8.1 Lines and Angles
8.1.1 Meaning of Terms Used in Geometry and Types of Angles
8.1.2 Types of Angles

8.2 Perimeters, and Areas

8.2.1 Finding Perimeters

8.2.2 Finding Areas of Rectangles and Squares

8.2.3 Finding Areas of Triangles, Parallelograms, and Trapezoids

8.3 Circles: Circumference and Area

8.3.1 Finding the Diameter and Radius of a Circle

8.3.2 Finding the Circumference and Area of a Circle

9. Translations

9.1 Symmetry, Reflection and Rotation

9.1.1 Symmetry, Reflection and Rotational Symmetry

9.1.2 Reflection

9.1.3 Rotation

9.2 Transformations

9.2.1 Size Transformation

9.2.2 Translation, Reflection, Rotation