

# List of Concepts for Pre-Algebra

## **Before Pre-Algebra**

- ▶ Adding/Subtracting Fractions Review
- ▶ Multiplying Fractions Review
- ▶ Dividing Fractions Review
- ▶ Converting Fractions and Decimals
- ▶ Multiplying Decimals Review
- ▶ Dividing Decimals Review

## **The Building Blocks of Pre-Algebra**

- ▶ Properties
- ▶ Exponent Review
- ▶ Square Roots
- ▶ Order of Operations (PEMDAS)
- ▶ Evaluating Expressions
- ▶ Translating Expressions
- ▶ Patterns

## **Being Positive About Negatives**

- ▶ Sets of Numbers - Integers
- ▶ Absolute Value
- ▶ Adding Negative Numbers
- ▶ Adding the Opposite
- ▶ Subtracting Negative Numbers
- ▶ Multiplying Negative Numbers
- ▶ Dividing Negative Numbers
- ▶ Dividing with 0
- ▶ Advanced PEMDAS

## **Terms, Distribution, and Introduction to Solving Equations**

- ▶ Combining Like Terms
- ▶ Distribution
- ▶ Testing for Solutions
- ▶ Solving Addition & Subtraction Equations
- ▶ Solving Multiplication & Division Equations
- ▶ Translating with Equations

## **Solving Equations**

- ▶ Solving Equations: 2-Step Multiplication
- ▶ Solving Equations: 2-Step Division
- ▶ Solving Equations: Combining Like Terms
- ▶ Solving Equations: Distribution
- ▶ Solving Advanced Distribution Equations
- ▶ Combining Like Terms Across the Equal Sign
- ▶ Negatives in Fractions
- ▶ Multiplying by the Reciprocal
- ▶ Solving Equations with Decimals

## **Exponents and Fractions**

- ▶ Sets of Numbers - Rational Numbers
- ▶ Multiplication with Exponents
- ▶ Division with Exponents
- ▶ Zero and Negative Exponents
- ▶ Advanced Exponent Examples
- ▶ Multiplying/Dividing by Powers of 10
- ▶ Scientific Notation
- ▶ Multiplying with Scientific Notation
- ▶ Prime Factorization
- ▶ Factoring Algebraic Expressions
- ▶ GCF: Algebraic Expressions
- ▶ GCF: Commons Method
- ▶ LCM: Algebraic Expressions
- ▶ LCM: Commons and Uncommons Method
- ▶ Comparing Fractions
- ▶ Simplifying Algebraic Expressions

## **Advanced Fractions and Percents**

- ▶ Adding/Subtracting Like Fractions (without Variables)
- ▶ Adding/Subtracting Like Fractions (with Variables)
- ▶ Solving Adding/Subtracting Equations with Like Fractions
- ▶ Adding/Subtracting Unlike Fractions (without Variables)
- ▶ Adding/Subtracting Unlike Fractions (with Variables)
- ▶ Multiplying Fractions (with and without Variables)
- ▶ Dividing Fractions (with and without Variables)
- ▶ Converting Fractions, Decimals, and Percents
- ▶ Parts of Percents
- ▶ Percent of a Number Problems
- ▶ Percent Increase and Decrease Problems

## **Rates, Ratios, Proportions, and Statistics**

- ▶ Rates and Ratios
- ▶ Using Unit Rates
- ▶ Proportions Basics
- ▶ Solving Proportions
- ▶ The Counting Principle and Combinations
- ▶ Permutations
- ▶ Mix of Permutations, Combinations, and Counting Principle Problems
- ▶ Simple Probability
- ▶ Compound Probability

## **Irrational Numbers and Inequalities**

- ▶ Solving Equations Using Square Roots
- ▶ Sets of Numbers: Irrational Numbers
- ▶ Irrational Number Concept Questions
- ▶ Inequality Basics
- ▶ Graphing Inequalities
- ▶ Solving One-Step Inequalities (Part 1)
- ▶ Solving One-Step Inequalities (Part 2)

- ▶ Solving Inequalities with Fractions
- ▶ Solving Two-Step Inequalities
- ▶ Solving Multi-Step Inequalities

### **Geometric Fundamentals, Triangles and Quadrilaterals**

- ▶ Geometry Basics
- ▶ Angles
- ▶ Classifying and Making Triangles
- ▶ Is It a Triangle?
- ▶ Angles in a Triangle
- ▶ Angle/Side Relationships
- ▶ Special Properties of Triangles
- ▶ Quadrilaterals
- ▶ Area of Parallelograms and Trapezoids
- ▶ Unit Multipliers
- ▶ Converting Units of Area

### **Similarity, Transformations and Circles**

- ▶ Similar Figures and Scale Factor Concepts
- ▶ Using Similar Figures and Scale Factor
- ▶ The Coordinate Plane and Plotting Points
- ▶ Reflection
- ▶ Rotation
- ▶ Translation
- ▶ Dilation
- ▶ Pi and Circumference
- ▶ Area of a Circle

### **Solids and the 3rd Dimension**

- ▶ Introduction to Solids
- ▶ Surface Area of Prisms
- ▶ Surface Area of Cylinders
- ▶ Volume of a Prism
- ▶ Converting Units of Volume
- ▶ Volume of a Cylinder
- ▶ Volume of a Cone
- ▶ Volume of a Pyramid

### **Linear Equations and Polynomials**

- ▶ Linear Equations Basics
- ▶ Solutions of Linear Equations
- ▶ Writing Linear Equations
- ▶ Graphing Linear Equations -- Table of Values Method
- ▶ Graphing Linear Equations -- Intercepts Method
- ▶ Vertical and Horizontal Lines
- ▶ Polynomial Basics
- ▶ Adding Polynomials
- ▶ Subtracting Polynomials
- ▶ Multiplying by a Monomial
- ▶ Dividing by a Monomial

## **Working With Data**

- ▶ Mean, Median, and Mode
- ▶ Box and Whisker Plots