Online Courses for High School Students
1-888-972-6237

Pre-Algebra

Semester A

Pre-Algebra A leads students from basic mathematics to the study of higher mathematics such as Algebra and Geometry. Students will develop the mathematical skills that are essential for lifelong success. Students will engage with real-world scenarios, expanding the way they think and solve problems. Students will also learn how to confront and solve abstract problems with confidence, all while enjoying a bit of humor along the way. Students will begin their Pre-Algebra journey with Expressions, Equations, and Inequalities, and finish the semester with Ratios, Rates, and Proportions. Throughout this meticulously designed curriculum, every concept presented is accompanied by relatable examples and supportive scaffolding.

Prerequisite: Math 7
Course Length: Two Semesters
Required Text: None

Integers and Expressions

- Variable Expressions
- Writing Expressions to Represent Situations
- Order of Operations
- Evaluating Algebraic Expressions
- Integers and Absolute Value
- Adding Integers
- Subtracting Integers
- Multiplying and Dividing Integers
- Problem Solving with Integers
- Inductive Reasoning and Patterns

Equations and Inequalities

- Commutative and Associative Properties
- Identity and Distributive Properties
- Simplifying Expressions
- Variables and Equations
- Solving Equations Using Addition and Subtraction
- Solving Equations Using Multiplication and Division
- Inequalities and Their Graphs
- Solving Inequalities Using Addition and Subtraction
- Solving Inequalities Using Multiplication and Division
- Problem Solving with Inequalities

Fractions and Decimals

- Rounding and Estimating
- Adding and Subtracting Decimals
- Multiplying and Dividing Decimals
- What are Rational Numbers?
- Factoring Algebraic Expressions
- Simplifying Fractions
- Adding and Subtracting Fractions and Mixed Numbers
- Multiplying and Dividing Fractions and Mixed Numbers
- Relating Fractions and Decimals
- Problem Solving Strategies

More Equations and Inequalities

- Writing Equations
- Two-Step Equations
- Multi-step Equations
- Solving Equations Using the Distributive Property
- Equations with Fractions and Decimals
- Using and Transforming Formulas
- Problem Solving with Equations
- Two-Step Inequalities
- Multi-Step Inequalities
- Solving Inequalities with Fractions and Decimals

Exponents and Units

- Powers and Exponents
- Multiplying Expressions with Exponents
- Dividing Expressions with Exponents
- Products and Quotients with Powers
- Exploring Like Terms with Exponents
- Powers of Ten
- Scientific Notation
- Customary Units of Measurement
- The Metric System
- Dimensional Analysis

Ratios and Proportions

- Ratios
- Rates
- Equivalent Ratios
- Proportional Relationships
- Writing and Solving Proportions
- Reciprocal Property
- Constant of Proportionality
- Similar Figures
- Scale Drawings
- Recipes

Semester B

Pre-Algebra B propels students into more advanced mathematical concepts. Building on the solid foundation laid by the Pre-Algebra A course, Pre-Algebra B explores more abstract concepts, helping students refine the skills that are essential for both algebraic thinking and problem- solving. Students start the semester learning about Percents, Simple Interest, and Taxes, move on to Geometry, Area, and Volume, and conclude the course with Probability and Statistics. This comprehensive curriculum is enriched with many hands-on activities and engaging demonstration videos that guide students toward a concrete understanding of fundamental mathematical principles. Using scaffolded instruction, students will demonstrate their mastery of each algebraic skill by completing numerous practice problems and assessments.

Percents

- Fractions, Decimals, and Percents
- Percents and Proportions
- Solving Percent Problems
- Percent Change
- Markups and Markdowns
- Sales Taxes
- Tips
- Simple Interest
- Commission
- Percent Error

Graphing Linear Functions

- Relations and Functions
- Evaluating Functions
- The Coordinate Plane
- Graphing Equations
- Finding the Slope
- Slope-Intercept Form of an Equation
- Graphing Equations in Slope-Intercept Form
- Writing Equations From Tables
- Scatter Plots
- Graphing Linear Inequalities

Introduction to Geometry

- Notation
- Classifying Angles
- Angle Relationships
- Parallel Lines and Transversals
- Classifying Polygons
- Interior Angle Sum Theorem
- Congruency
- Geometric Constructions
- Translations and Rotations
- Reflections and Symmetry

Area, Volume, and Surface Area

- Area of Triangles
- Area of Quadrilaterals
- Circumference of Circles
- Area of Circles
- Area of Composite Figures
- Area and Perimeter of Polygons in the Coordinate Plane
- Introduction to Volume
- Volume of Cubes
- Volume of Rectangular Prisms
- Surface Area of Three-Dimensional Figures

Probability

- Introduction to Probability
- Probability, Chance, and Odds
- Probabilities of Compound Events
- Fundamental Counting Principle
- Independent and Dependent Events
- The Factorial
- Permutations and Combinations
- Calculating Permutations and Combinations
- Experimental Probability and Simulations
- Fair and Unfair Games

Statistics

- Measures of Central Tendency
- Frequency Tables, Line Plots, and Histograms
- Box-and-whisker Plots
- Circle Graphs
- Outliers
- Examining Samples
- Comparing Data Sets
- Statistics: Putting It All Together