

Kendall Park Learning Center

Course Title: Pre-Algebra - Full Credit

Course Length: Six weeks (120 hours)

Prerequisites:

Pre-Algebra is a course offered to students who have successfully completed middle school math with at least a B+.

Topics Covered:

Variables and Expressions and Integers

- Expressions and Variables
- Powers and Exponents
- Order of Operations
- Comparing and Ordering Integers
- Adding and Subtracting Integers
- Multiplying and Dividing Integers
- The Coordinate Plane

Solving Equations

- Properties and Operations
- The Distributive Property
- Simplifying Variable Expressions
- Variables and Equations
- Solving Equations Using Addition or Subtraction
- Solving Equations Using Multiplication or Division
- Decimal Operations and Equations with Decimals

Multi - Step Equations and Inequalities

- Solving Two – Step Equations
- Solving Equations Having Like Terms and Parentheses
- Solving Equations with Variables on Both Sides
- Solving Inequalities Using Addition or Subtraction
- Solving Inequalities Using Multiplication or Division
- Solving Multi – Step Inequalities

Factors, Fractions, and Exponents

- Factors and Prime Factorization
- Greatest Common Factor
- Equivalent Fractions
- Least Common Multiple
- Rules of Exponents
- Negative and Zero Exponents
- Scientific Notation

Rational Numbers and Equations

- Rational Numbers
- Adding and Subtracting Like and Unlike Fractions
- Multiplying and Dividing Fractions
- Using Multiplicative Inverses to Solve Equations
- Equations and Inequalities with Rational Numbers

Ratio, Proportion, and Probability

- Ratios and Rates
- Writing and Solving Proportions
- Solving Proportions Using Cross Products
- Similar and Congruent Figures
- Scale Drawings
- Probability and Odds
- The Counting Principle

Percents

- Percents and Fractions
- Percents and Proportions
- Percents and Decimals
- The Percent Equation
- Percent of Change
- Percent Applications
- Simple and Compound Interest

Linear Functions

- Relations and Functions
- Linear Equations in Two Variables
- Using Intercepts
- The Slope of the Line
- Slope – Intercept Form
- Writing Linear Equations
- Function Notation
- Systems of Linear Equations
- Graphs of Linear Inequalities

Real Numbers and Right Triangles

- Square Roots
- Simplifying Square Roots
- The Pythagorean Theorem
- Real Numbers
- The Distance and Midpoint Formulas
- Special Right Triangles
- The Tangent Ratio
- The Sine and Cosine Ratios

Measurement, Area, and Volume

- Triangles
- Polygons and Quadrilaterals
- Areas of Parallelograms and Trapezoids
- Circumference and Area of a Circle
- Surface Areas of Prisms and Cylinders
- Surface Areas of Pyramids and Cones
- Volumes of Prisms and Cylinders
- Volumes of Pyramids and Cones
- Stem and Leaf Plots and Histograms

Box and Whisker Plots
Permutations and Combinations
Probabilities of Disjoint and Overlapping Events
Independent and Dependent Events

Polynomials and Nonlinear Functions

Polynomials
Adding and Subtracting Polynomials
Multiplying Monomials and Polynomials
Multiplying Binomials
Quadratic Functions
Exponential Growth and Decay
Sequences

Angle Relationships and Transformations

Angle Relationships
Angles and Parallel Lines
Angles and Polygons
Translations
Reflections and Symmetry
Rotations and Symmetry
Dilations

Text:

Boswell, Kanold, Larson, Stiff. Pre-Algebra. McDougal Littell. Houghton Mifflin Co.

New Jersey Department of Education Core Curriculum Standards for Mathematics.
www.state.nj.us/njded/cccs.