

Middle School Mathematics Course Topics

Side 1: Enrichment Sequence

Pre-Algebra (Grade 6)

Statistics & Probability
Data & Central Tendency
Standard Deviation/Normal Data
Misuse of Statistics & Graphs
Probability & Possible Outcomes

Patterns & Investigations in Algebra
Order of Operations
Variable Expressions & Equations
Formulas & Literal Equations

Integers & The Number Line
Properties of Real Numbers
Operations with Integers
Solving Equations & Inequalities

Number Theory
Factors, Multiples, & Divisibility
Prime Factorization
GCF and LCM

Ratios, Proportions, & Percents
Percents, Decimals, Fractions
Ratios, Rates, & Proportions
Percent of Increase/Decrease

Measurements in Geometry
Area, Perimeter, & Circumference
Polyhedrons & Other Solids
Surface Area & Volume

Introduction to Two-Variable Equations
Solutions & The Coordinate Plane
Graphs of Linear Equations

Algebra A (Grade 7)

Tools of Algebra
Operations with Integers
Variable Expressions

Algebraic Concepts & Simple Equations
Modeling & Solving Equations
Equations with Percents

Multi-Step Equations & Inequalities
Multi-Step Equations
Literal Equations & Formulas
Absolute Value Equations
Simple & Multi-Step Inequalities

Functions & Their Graphs
Relations & Functions
Families of Functions

Graphing & Writing Linear Equations
Slope & Rate of Change
Forms of the Equation of a Line
Scatter Plots & Lines of Best Fit
Parallel & Perpendicular Lines

Systems of Equations
Solution(s) of a System
Solution Methods
Writing Systems
Nonlinear Systems

Inequalities & Systems of Inequalities
Linear Inequalities
Systems of Linear Inequalities
Linear Programming

Algebra B (Grade 8)

Exponents & Exponential Functions
Exponential Growth & Decay
Zero & Negative Exponents
Properties of Exponents

Right Triangles & Radical Expressions
Pythagorean Theorem
Distance & Midpoint Formulas
Trigonometric Ratios
Radical Expressions & Equations

Quadratic Equations & Functions
Graphs of Quadratic Equations
Solving with Square Roots
Solving with the Quadratic Formula
Solutions & the Discriminant

Polynomials
Operations with Polynomials
Factoring Trinomials
Factoring Special Cases
Solving by Factoring
Choosing a Solution Method

Rational Expressions & Functions
Direct & Indirect Variation
GCF & LCM Review
Simplify Rational Expressions
Solve Rational Equations
Domain Restrictions/Asymptotes

Synopsis of Algebra I Topics
Linear Equations and Functions
Nonlinear Equations and Functions

Middle School Mathematics Course Topics

Side 2: Accelerated Sequence

Pre-Algebra (Grade 6)

Statistics & Probability
Data & Central Tendency
Standard Deviation/Normal Data
Misuse of Statistics & Graphs
Probability & Possible Outcomes

Patterns & Investigations in Algebra
Order of Operations
Variable Expressions & Equations
Formulas & Literal Equations

Integers & The Number Line
Properties of Real Numbers
Operations with Integers
Solving Equations & Inequalities

Number Theory
Factors, Multiples, & Divisibility
Prime Factorization
GCF and LCM

Ratios, Proportions, & Percents
Percents, Decimals, Fractions
Ratios, Rates, & Proportions
Percent of Increase/Decrease

Measurements in Geometry
Area, Perimeter, & Circumference
Polyhedrons & Other Solids
Surface Area & Volume

Introduction to Two-Variable Equations
Solutions & The Coordinate Plane
Graphs of Linear Equations

Algebra 1 (Grade 7)

Tools of Algebra
One-Variable Equations & Inequalities
Absolute Value Equations

Functions & Their Graphs
Relations & Functions
Families of Functions

Two-Variable Equations & Inequalities
Slope & Rate of Change
Forms of Linear Equations
Parallel & Perpendicular Lines
Systems of Equations & Inequalities

Exponents & Exponential Functions
Exponential Growth & Decay
Exponents & Scientific Notation

Right Triangles & Radical Expressions
Pythagorean Theorem
Trigonometric Ratios
Radical Expressions & Equations

Quadratic Equations & Functions
Quadratic Equations & Inequalities
Solutions & Methods

Polynomials
Operations with Polynomials
Solve Polynomial Equations

Rational Expressions & Functions
Simplify Rational Expressions
Solve Rational Equations

Algebra 2 (Grade 8)

Linear Functions
Data & Linear Correlation
Linear Equations & Inequalities

Systems of Linear Equations & Inequalities
Solutions & Methods
Linear Programming
Three-Variable Equations & Systems
Solve Systems with Inverse Matrices

Quadratic Equations & Functions
Review of Absolute Value Functions
Solutions & Graphs of Quadratics
Derive the Quadratic Formula
The Square Root (Inverse) Function

Polynomials & Polynomial Functions
Solve Polynomial Equations
Pascal's Triangle/Binomial Expansion
Graphs of Polynomial Functions

Exponential & Logarithmic Functions
Exponential & Logarithmic Expressions
Graphs & Equations
Solution Techniques

Rational Functions
Rational Expressions & Equations
Graphs of Rational Functions
Asymptotic Behavior

Periodic Functions
Right Triangle Trigonometry
Graphs of Trigonometric Functions