

MATH 8 COURSE OUTLINE

I. Real Numbers and Algebra

- A. A Plan for Problem Solving
- B. Variables, Expressions, and Properties
- C. Integers and Absolute Value
- D. Adding Integers
- E. Subtracting Integers
- F. Multiplying and Dividing Integers
- G. Writing Expressions and Equations
- H. Solving Addition and Subtraction Equations
- I. Solving Multiplication and Division Equations

II. Algebra: Rational Numbers

- A. Fractions and Decimals
- B. Comparing and Ordering Rational Numbers
- C. Multiplying Rational Numbers
- D. Dividing Rational Numbers
- E. Adding and Subtracting Like Fractions
- F. Adding and Subtracting Unlike Fractions
- G. Solving Equations with Rational Numbers
- H. Powers and Exponents
- I. Scientific Notation

III. Algebra: Real Numbers and the Pythagorean Theorem

- A. Square Roots
- B. Estimating Square Roots
- C. The Real Number System
- D. The Pythagorean Theorem
- E. Using the Pythagorean Theorem
- F. Distance on the Coordinate Plane

IV. Proportions, Algebra, and Geometry

- A. Ratios and Rate
- B. Rate of Change
- C. Slope
- D. Solving Proportions
- E. Similar Polygons
- F. Scale Drawings and Models
- G. Indirect Measurement
- H. Dilations

V. Percents

- A. Ratios and Percents
- B. Fractions, Decimals, and Percents

- C. The Percent Proportion
- D. Finding Percents Mentally
- E. Percent and Estimation
- F. The Percent Equation
- G. Percent of Change
- H. Simple Interest

VI. Geometry

- A. Line and Angle Relationships
- B. Triangles and Angles
- C. Special Right Triangles
- D. Classifying Quadrilaterals
- E. Congruent Polygons
- F. Symmetry
- G. Reflections
- H. Translations
- I. Rotations

VII. Geometry: Measuring Area and Volume

- A. Area of Parallelograms, Triangles, and Trapezoids
- B. Circumference and Area of Circles
- C. Area of Complex Figures
- D. Three-Dimensional Figures
- E. Volume of Prisms and Cylinders
- F. Volume of Pyramids and Cones
 - 1. Nets
- G. Surface Area of Prisms and Cylinders
- H. Surface Area of Pyramids and Cones
- I. Precision and Significant Digits

VIII. Algebra: Linear and Nonlinear Functions

- A. Simplifying Algebraic Expressions
- B. Solving Two-Step Equations
- C. Writing Two-Step Equations
- D. Solving Equations with Variables on Each Side
- E. Inequalities
- F. Solving Inequalities by Adding or Subtracting
- G. Solving Inequalities by Multiplying or Dividing

IX. Algebra: Linear Functions

- A. Sequences
- B. Functions
- C. Graphing Linear Functions
- D. The Slope Formula
- E. Slope-Intercept Form

- F. Scatter Plots
- G. Graphing Systems of Equations
- H. Graphing Linear Inequalities

X. Algebra: Nonlinear Functions and Polynomials

- A. Linear and Nonlinear Functions
- B. Graphing Quadratic Functions
- C. Simplifying Polynomials
- D. Adding Polynomials
- E. Subtracting Polynomials
- F. Multiplying and Dividing Monomials
- G. Multiplying Monomials and Polynomials

XI. Probability

- A. Probability of Simple Events
- B. Counting Outcomes
- C. Permutations
- D. Combinations
- E. Probability of Compound Events
- F. Experimental Probability
- G. Using Sampling to Predict

XII. Statistics and Matrices

- A. Histograms
- B. Circle Graphs
- C. Choosing and Appropriate Display
- D. Measures of Central Tendency
- E. Measures of Variation
- F. Box-and-Whisker Plots
- G. Misleading Graphs and Statistics
- H. Matrices