

MATH TOPICS AND SUBTOPICS

Pre-Algebra

- Variables and Expressions
 - What are variables?
 - What are expressions?
 - Evaluate expressions
 - Write variable expressions
 - What is an exponent
 - Writing exponents
 - Calculate exponents
 - Order of Operations
- Integers
 - What is an integer?
 - Comparing integers
 - Graph integers on a number line
 - Opposite of an integer
 - Absolute Value
 - Add, subtract, multiply, and divide integers
 - Plot points on a coordinate plane
- Solving Equations
 - Properties of addition and multiplication
 - Associative, commutative, and identity properties
 - Unit Conversions
 - Distributive Property
 - Solve equations for x by adding, subtracting, multiplying, and dividing
- Multi-Step Equations
 - Solving for x in multiple steps
 - Check your answer
- Inequalities
 - What is an inequality
 - Solve inequalities
 - Graph solution of inequalities
- Factors
 - What are factors
 - Prime Factorization
 - Find the Greatest Common Factor (GCF)
 - Find the Least Common Multiple (LCM)
- Exponents
 - Properties of exponents
 - Multiplication with exponents
 - Division with exponents
 - Negative Exponents
- Fractions
 - Find equivalent fractions
 - Simplify fractions
 - Write fractions as decimal
 - Write decimals as fractions
 - Improper fractions
 - Mixed fractions
 - Add, subtract, multiply, and divide fractions
 - Multiply by a reciprocal
 - Solve equations containing fractions
- Ratios
 - What is a ratio
 - How to write ratios
 - Find ratios
 - Unit Rate
 - Solve proportions
 - Cross-Products
 - Similar Triangles
- Scale Drawings (maps)

- **Probability**
 - Find the odds of a certain event
 - Counting Principle
 - Factorials
 - Permutations
 - Combinations
- **Percents**
 - Write percents as fractions
 - Write fractions as percents
 - Use proportions to find percents
 - Write percents as decimals
 - Write decimals as percents
 - Percent Increase
- **Intro to Functions**
 - Identify the domain and range of a function
 - Graph relations
 - Draw mapping diagrams of a relation
 - Identify functions
 - Determine solutions of a function
 - Graph functions
- **Slope-Intercept Form**
 - Horizontal and Vertical Lines
 - Identify the slope of a line
 - Find the intercepts of a line
 - Write functions in slope-intercept form
- **Point-Slope Form**
 - Write functions in point-slope form
 - Graph functions by identifying a point and slope
 - Write an equation for a line parallel to a given line
 - Write an equation for a line perpendicular to a given line
- **Square Roots**
 - What is a square root
 - How to evaluate square roots
 - Multiplying square roots
 - Dividing square roots
 - Simplifying square roots that contain variables
 - Solve equations using square roots
- **Right Triangles**
 - What is Pythagorean Theorem
 - Find the missing side of the triangle
 - Find the distance between two points
 - Trig Functions: Sine, Cosine, Tangent
- **Area/Volume**
 - Find the area of 2D objects
 - Find the surface area of 3D objects
 - Find the volume of 3D objects
- **Polynomials**
 - What is a monomial, binomial, and polynomial?
 - Add and subtract polynomials
 - Multiply a monomial and a polynomial
 - Multiply two binomials

Algebra 1

- Inequalities
 - Solve and graph compound inequalities
 - Solve equations containing absolute value
 - Solve and graph inequalities containing absolute value
 - Find solutions to inequalities containing two variables
 - Graph inequalities containing two variables
- System of Equations
 - Solve system of equations by graphing
 - Solve system of equations by using substitution
 - Solve system of equations by using elimination
- Exponential Functions
 - Write numbers using scientific notation
 - Graph exponential functions
 - Find the domain and range of exponential functions
- Polynomials and Factoring
 - Calculate the product of two polynomials
 - Calculate the product of two binomials using special patterns
 - Solve equations that are factored
 - Factor polynomials
- Quadratic Equations and Functions
 - Graph quadratics/parabolas
 - Solve quadratic equations by:
 - Graphing
 - Factoring
 - Using Square Roots
 - Completing the Square
 - Using the Quadratic Formula
 - Interpret the discriminant to determine the number of solutions for a quadratic equation
- Radicals
 - Graph radical functions
- Rational Equations
 - Simplify radical expressions by
 - Factoring
 - Long Division
- Data Analysis
 - Calculate the mean, median, and mode of a set of numbers