

ac / math scope

Dynamic, Interactive Learning



Math Activity Objects

MIDDLE SCHOOL NUMBERS AND OPERATIONS

Whole Numbers and Integers

- Round Whole Numbers
- Puzzle It! Number Relationships on Operation
- Subtraction of Integers
- Addition of Integers
- Special Numbers
- Prime Factorization
- Finding Least Common Multiples
- Greatest Common Factor of Numbers

Rational Numbers and Real Numbers

- Compare and Order Proper Fractions
- Compare and Order Mixed Numbers
- Adding and Subtracting Fractions and Mixed Numbers
 Multiplication of Fractions
- Division of Fractions
- Equivalent Fractions
- Decimal Representations
- Compare and Order Decimals with Races
- Factorization of Decimals Using a Model
- Rounding Decimals
- Puzzle It! Operations on Numbers in Scientific Notation
- Solving Problems Using Money
- Park Planning Using Rational Numbers
- Solving Problems Using Proportions
- Problem Solving Involving Ratio and Proportion
- Scale Drawing
- Using a Percent Model
- Use Percent Proportion to Solve Problems
- Simple Interest
- Percentage of Mixtures
- Estimating the Square Root of Non-Perfect Integers

MIDDLE SCHOOL ALGEBRA

Patterns

- Problem Solving Involving Gauss' Patterns - The General Rule for Input/Output Tables

Equation, Equality, Inequality, Function and Graphs

- Different Forms of Representation
- for a Relationship
- Translating Problems into One-step Equations
- Solving One-Step Linear Equations - Solving Two-Step Linear Equations
- Graphing Linear Inequalities in One Variable
- Solving One-Step Linear Inequalities
- Slope of a Line
- Graphs of One-step Linear Equations
- Graphs of Two-step Linear Equations
- Find the Equations of Linear Graphs
- Graphing Linear Inequalities in Two Variables

Algebraic Expressions

- Factoring Algebraic Expressions
- Evaluation of Algebraic Expressions

MIDDLE SCHOOL GEOMETRY

Basic Concepts in Geometry

- Basic Elements of Geometry
- Points, Lines, Planes and Their Relationships - Angles and Types of Angles

Transformational Geometry

Application of Translation
Drawing the Reflection of a Figure
Symmetry of a Figure

Triangles

- Interior and Exterior Angles of a Triangle - Types of Triangles
- Let's Find Congruent Triangles
- Let's Find Similar Triangles
- Trigonometric Ratios in the Right Triangles
- Trigonometric Ratios of Special Angles

Polygons

- Sum of the Exterior Angles of Polygons
- Interior Angles of the Polygons
- Classification of Quadrilaterals
- Area of Composite Shapes
- The Relationship between Perimeter and Area
- Proof of the Pythagorean Theorem
- Using the Pythagorean Theorem
- to Solve Problems
- Area of Parallelogram
- Area of a Trapezoid

Circle

- Arcs and Angles of a Circle
- Ratio of a Circle's Circumference to Its Diameter
- Calculating the Circumference of a Circle
- Formula for the Area of a Circle

3D Geometry

- Drawing 2D Views of a 3D Object
- Completing the Missing 2D View of a 3D Object
- Observing Changes in Volume of Square Prisms

- Problem Solving Involving Volumes of Prisms
- Observing Changes in Volume
- of Quadrilateral Pyramids
- Observing Changes in Volume of Cylinders
- Formula for the Volume of a Sphere
- Formula for the Volume of a Cone
- Observing Changes in Surface Area of Regular Prisms
- Observing Changes in Surface Area of Square Pyramids
- Observing Changes in Surface Area of Cylinders
- Observing Changes in Surface Area of Cones

MIDDLE SCHOOL MEASUREMENT

Measurement

- Conversion of Length Measures
- Conversion of the Area Measures
- Conversion of Volume Measures

- Fundamental Counting Principle

- Permutations and Their Properties

DATA ANALYSIS AND PROBABILITY

- Measuring Time

MIDDLE SCHOOL

Counting Principles

- Factorial Notation

Tables and Graphs

- Drawing Bar Graphs

- Interpreting Bar Graphs

- Bar Graphs and Line Graphs

- Combinations

Math Activity Objects

- Circle Graphs
- Find the Appropriate Graph
- Double Bar Graphs
- Tally Charts
- Pictograph
- Histogram
- Line Plot
- Box and Whisker Plots
- Stem and Leaf Plot

Measurement of Central Tendency

- Mean, Median and Mode
- Calculate Mean, Median, Mode

Probability

- The Concept of Probability
- Experimental and Theoretical Probabilities
- Probability Using Tree Diagrams
- Analyze Experimental Probability Using Graphs
- Playing with Probability
- Find the Given Probability
- Overlapping and Mutually Exclusive Events

HIGH SCHOOL NUMBER AND OPERATIONS

Numbers

- Prime Factorization
- Greatest Common Factor of Numbers
- Ratio and Rate
- Proportion and Its Properties
- Direct Variations and Their Graphs
- Properties and Rules of Exponents
- Properties and Rules of Radicals
- Absolute Values and Their Properties
- Multiplication and Division of Radicals
- Properties of Rational & Irrational Numbers

Sets

- The Basics and Properties of Sets

- Subsets of a Set
- Union and Intersection of Sets - Complement of a Set
- Complement of a Set - Difference of Two Sets
- Problems Involving Sets

HIGH SCHOOL

ALGEBRA

Algebraic Representation

Factoring Advanced Algebraic Expressions
 Multiplying and Dividing Rational Expressions

Linear Equations and Inequalities

- Solving One-Step Linear Equations
- Solving Two-Step Linear Equations
- Distance Problems: Two Travelers Starting at The Same Time
- The Concept of Linearity
- The Concept of Slope
- Equation of a Line
- Two lines with respect to each other
- Solving Systems of Linear Equations by Elimination
- Solving Systems of Linear Equations Graphically
- Graphing Linear Inequalities in One Variable
- Solving One-Step Linear Inequalities
- Graphing Linear Inequalities in Two Variables

Relations and Functions

- Different Forms of Representation for a Relationship
- The Concept of Relation
- The Concept of Relation
- Determining Whether a Relation Is
- also a Function - The Domain and Range of a Function
- Fundamental Concepts of the Inverses of Functions

- Calculations Based on the Graphs of Functions
- Finding Solution Sets Based on Graphs of Functions

Quadratics

- Introducing the Quadratic Function and Its Graph
- Introducing the Quadratic Equations in One Variable
- A Quadratic Function
- Given in General and Vertex Form
- Solving Quadratic Equations by Factoring
 Solving Quadratic Equations by Completing the Square
- Solving Quadratic Equations using Quadratic Formula and Discriminant
- Roots and Coefficients of a Quadratic Equation
- Visualizing the Parabola
- Graphing a Quadratic Function: Vertex Form
- Graphing a Quadratic Function: Intercept Form
- Graphing a Quadratic Function: General Form
- Finding the Equation of a Parabola
- The Range of a Quadratic Function
- How Two Parabolas Intersect
- Solving Quadratic Inequalities by Graphing
- Quadratics with Parameters

Polynomials

- Characteristics of Polynomials
- Polynomial Long Division
- Polynomial Synthetic Division
- Remainder Theorem

Trigonometry

- The Angle, and Angles in Standard Position
- Trigonometric Ratios in the Right Triangles
- Trigonometric Ratios on the Unit Circle

- Trigonometric Ratios of Special Angles
- Degree and Radian
- Arc Length in a Circle
- Area of a Sector
- Co-Terminal Angles
- The Reference Angle
- Finding the Period

HIGH SCHOOL

- Factorial Notation

of Subsets of a Set

of Parallelograms

Probability

Using Graphs

Counting Principles

of a Trigonometric Function

- Graphing Tangent Functions

- Graphing Cotangent Functions

- Fundamental Counting Principles

- Permutations and Their Properties

- Combinations and Their Properties

- Problems Involving the Number

- Counting Principles: Digits

- Circular Permutation Problems

- Permutations with Repetition

- Counting Problems: Number

- The Concept of Probability

- Playing with Probability

Independent Events

- Find the Given Probability

- Probability Using Tree Diagrams

- Analyze Experimental Probability

- Experimental and Theoretical Probabilities

- Overlapping and Mutually Exclusive Events

- Conditional Probability and Dependent and

DATA ANALYSIS AND PROBABILITY

- Graphing Sine Function - Graphing Cosine Function



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