

OLYMPIAD INTERNATIONAL MATH SYLLABUS CLASS 7

Integers

- Understanding absolute value
- Integers on number lines
- Addition and Subtraction of integer on number line
- Absolute value and opposite integers
- Quantities that combine to zero: word problem
- Compare and order integers
- Integer inequalities with absolute values
- Evaluate numerical expressions involving integers
- Compare temperature above and below zero degree celsius
- Word Problems

Fractions and Decimals

- Fractions and Decimal numbers review
- Compare and order decimals
- Decimal number lines
- Round decimals
- Equivalent fractions
- Least common denominator
- Round mixed numbers
- Convert Fractions and mixed numbers to decimals
- Convert between mixed numbers and improper fractions

- Compare mixed numbers and improper fractions
- Fractions and Compare fractions : Word Problems

Exponents and Powers

- Understanding exponents
- Evaluate exponents
- Addition and subtraction of exponents
- Solve equations with variable exponents
- Exponents with negative bases
- Exponents with decimal and fractional bases
- Powers of ten
- Evaluate numerical expressions involving exponents

Algebraic Expressions

- Identifying expressions and equations
- Writing algebraic expressions
- Evaluating expressions
- Equivalent expressions
- Simplifying expressions
- Expanding expressions
- Factoring expressions
- Solving equations
- Multi-step equations

Simple Linear Equations

- Forms of linear equations
- What is slope? / Learning slope
- Finding slope from a graph
- Finding slope from two points

- Identify the slope and y-intercept from an equation
 - Writing an equation from a slope and y-intercept
 - Writing an equation from a slope and a point
- System of Equation
- Solving systems of equations using graphing
 - Solving systems of equations using substitution
 - Solving systems of equations using elimination
 - Finding the number of solutions to a system of equations
 - Classifying systems of equations

Practical Geometry.

- Plane and Point
- Lines, Segments and rays
- Parallel, perpendicular and intersecting lines
- Distance between two points
- Quadrants and axes
- Line Bisection
- Angle Bisector
- Calculating Supplementary and complementary angles
- Word Problem

Lies and Angles

- Interior angles of polygons

- Lines, line segments, and rays
- Parallel, perpendicular, and intersecting lines
- Identify complementary, supplementary, vertical, and adjacent angles
- Find measures of complementary, supplementary, vertical, and adjacent angles
- Write and solve equations using angle relationships
- Identify alternate interior and alternate exterior angles
- Transversals of parallel lines: name angle pairs
- Transversals of parallel lines: find angle measures
- Find lengths and measures of bisected line segments and angles
- Word Problems

Comparing Quantities

- Estimate customary and metric measurements
- Compare and convert customary units
- Mixed customary units
- Compare and convert metric units
- Convert between customary and metric systems
- Precision
- Word Problems

The Triangle and its Properties

- Lines in the Triangle: Median, Altitude
- Sum of the lengths of two sides of a triangle
- Difference between lengths of two sides of a triangle
- Angle sum property of a triangle

- Exterior angle of a triangle and its property
- Pythagoras Theorem
- Properties of isosceles and equilateral triangles
- Classification of triangles based on sides and on angles
- Word Problems

Congruence of Triangle

- Identify congruent triangle
- Congruence statements and corresponding parts
- Side lengths and angle measures of congruent figures
- Congruent triangles: SSS, SAS, and ASA
- Word Problems

Symmetry

- Line and Rotational symmetry
- Rotational symmetry: amount of rotation
- Identify reflections, rotations, and translations
- Describe a sequence of transformations
- Translations: graph the image
- Translations: find the coordinates
- Word Problems

Rational Numbers

- Rational numbers
- Rational numbers on number lines
- Comparing rational numbers

- Ordering rational numbers
- Adding and subtracting rational numbers
- Multiplying and dividing rational numbers
- Word Problems

Perimeter and Area

- Perimeter
- Area of rectangles and parallelograms
- Area of triangles and trapezoids
- Circumference of circles
- Area of circles
- Area of semicircles and quarter circles
- Calculating perimeter, radius, and diameter of Semicircles
- Calculating perimeter, and radius of Quarter Circles
- Area of compound figures made of rectangles and triangles
- Area of compound figures with semicircles, and quarter circles
- Area between two shapes
- Area and perimeter: word problems
- Circles: word problems

Surface Areas and Volumes

- Surface area of cubes and prisms
- Surface area of pyramids
- Surface area of cylinders
- Volume of cubes and prisms
- Volume of pyramids and cylinders

- Volume of cubes and rectangular prisms: word problems
- Surface area of cubes and prisms: word problems

Data Handling

- Interpret tables and line plots
- Interpret stem-and-leaf plots
- Interpret bar graphs and histograms
- Interpret frequency charts
- Interpret circle graphs
- Interpret line graphs
- Study the categorized data and solve the questions
- Find the answers of the questions using information given in pictographs, picture graphs

Logical Reasoning

- Number and figure patterns
- Coding and decoding
- Blood Relations
- Alphabet test
- Alpha-numo test
- Direction sense test
- Ranking test: find the position of a term or a object from the given position
- Mirror images or Water images
- Sitting arrangements
- Embedded figures