

TOPICS TO STUDY FOR MATHCON

- ❖ The following topics provide a framework for MathCON.
- ❖ These topics are not curriculum.
- ❖ It is recommended that students review previous grade topics.
- ❖ Any grade level's topics are related to the previous grade level and promote continuous improvement over the years.
- ❖ A MathCON test consists of multiple-choice questions covering the following topics:
Algebra, Geometry, Number Theory, and Combinatorics
- ❖ There could be questions from different topics that aren't listed below at MathCON.

TOPICS TO STUDY FOR MATHCON

9TH GRADE MATH

- ❖ Algebraic expressions
- ❖ Rational and irrational numbers
- ❖ Real numbers
- ❖ Exponential numbers and equations
- ❖ Simplifying exponential expressions
- ❖ Polynomials, operations on polynomials, zeros of polynomials
- ❖ Polynomial identities, factorization, and division of polynomials
- ❖ Quadratic functions and graphs
- ❖ Quadratic equations
- ❖ Binomial Theorem and Pascal's Triangle
- ❖ Rational expressions, simplifying rational expressions
- ❖ Radicals and rational exponents
- ❖ Solving Equations in one or more variables
- ❖ Rational and radical equations
- ❖ Systems of equations and inequalities
- ❖ Represent and solve equations and inequalities graphically
- ❖ Linear, polynomial, rational, absolute value, and exponential functions and their transformations
- ❖ Inverse of a function
- ❖ Functions, vertical line test, intercepts of graphs, and sketching graphs
- ❖ Piecewise and step functions
- ❖ Correlation and linear regression
- ❖ Graphing system of equations and inequalities
- ❖ Rate of change and slope
- ❖ Arithmetic and geometric sequences, and series
- ❖ Statistics, measures of center, representing data, outliers
- ❖ Variance, standard deviation, regression, correlation, causation
- ❖ Measures of spread, distribution of data, categorical data

TOPICS TO STUDY FOR MATHCON

- ❖ Point, line, plane
- ❖ Distance
- ❖ Angles
- ❖ Triangles, quadrilaterals, and polygons
- ❖ Congruence and similarity of figures
- ❖ Perimeter and area of polygons
- ❖ Circles, arcs, and chords
- ❖ Three dimensional figures (areas, volumes, cross sections)
- ❖ Transformation and symmetry (Rotations, reflections, translations, tessellation, dilation, and symmetry)
- ❖ Trigonometry
- ❖ Permutation, Combination and Probability
- ❖ Venn diagram