



TOPICAL OUTLINE FOR GEOMETRY

A. LOGIC AND PROOFS

1. Inductive Reasoning and Logic
2. Deductive Reasoning
3. Segment and Angle Proofs
4. Algebraic Proofs
5. Indirect Proofs

B. CONSTRUCTIONS

1. Perpendicular Lines
2. Perpendicular Bisectors
3. Angles Bisectors
4. Parallel Lines

C. PERIMETER, AREA, AND VOLUME

1. Circle
2. Rectangle
3. Triangle
4. Trapezoid
5. Parallelogram
6. Regular Polygons
7. Cylinders, Cones, Spheres, and Pyramids
8. Pythagorean Theorem
9. Applications

D. SIMILAR POLYGONS

1. Equal Angles
2. Proportional Sides
3. Applications

E. PROBABILITY AND STATISTICS

1. Basic Probabilities
2. Factorial
3. Permutations
4. Combinations
5. Pascal's Triangle
6. Mean, Median, Mode
7. Variance
8. Standard Deviation
9. Applications

F. ANGLES AND MEASUREMENT

1. Radians vs. Degrees
2. Vertical, Complimentary, Supplementary
3. Parallel and Perpendicular
4. Midpoint and Distance
5. Corresponding, Alternate Interior, Alternate Exterior, Same Side Interior
6. Algebraic Applications on Geometric Angles
7. Angles in a Polygon
8. Arc Lengths, Chords, Sectors, Tangents, and Segments
9. Special 30-60-90 Triangles
10. Special 45-45-90 Triangles

G. CIRCLES

1. Equations of Circles
2. Arc length
3. Sectors
4. Chords
5. Tangents
6. Secants

H. BASIC TRIGONOMETRY

1. Sine
2. Cosine
3. Tangent
4. Applications

I. CONGRUENT TRIANGLES

1. Types of Triangles
2. Proving SSS Triangles Congruent
3. Proving SAS Triangles Congruent
4. Proving ASA Triangles Congruent
5. Proving AAS Triangles Congruent

J. TRANSFORMATIONS

1. Symmetry
2. Reflections
3. Translations
4. Dilations
5. Rotations
6. Compound Transformations
7. Applications

K. FIBONACCI

1. The Fibonacci Sequence
2. The Golden Ratio and Phi
3. The Golden Spiral
4. Applications

L. SEQUENCES AND SERIES

1. Arithmetic
2. Geometric
3. Applications