Form G Placement Exam Topics

Form A	Students who have completed one full year of Algebra 1
Form G	Students who have completed **at least**: One full year of Algebra 1 and one full year of Geometry

To prepare, you may review the topics you were taught using the following list:

BASIC ALGEBRA SKILLS:

All Topics listed for Form A

LOGIC

Statements and Negations
Truth Tables, Tautology, Logical Equivalence, Evaluating a Compound Statement
The Parts of a Conditional: Converse, Inverse, and Contrapositive
Laws of Reasoning and Presenting Arguments
Using the Laws of Reasoning

EUCLIDEAN GEOMETRY

The Foundations of Geometry, Structure of an Axiomatic System, Equivalence Relation
Angles and Triangles: Names of Angles with Respect to Degree Measure, Perpendicularity, Angle Pairs, Classifying Triangles, Line Segments Associated with Triangles
Congruence: Definition of Congruent Polygons, Methods of Proving Triangles Congruent Using Congruent Triangles to Prove Congruent Parts, Using Congruent Triangles to prove Perpendicularity, Using Overlapping Triangles, Using Two Pairs of Congruent Triangles
Isosceles Triangles
Parallel Lines: Angles Formed by Two Lines and a Transversal, Knowing when Two Lines are Parallel, Properties of Parallel Lines
Triangles and Angle Measure: The Interior Angles of a Triangle, the Exterior Angles of Triangles
Geometric Inequalities: Properties of Inequality, Relationship Between the Sides and Angles of a Triangle, Operations With Inequalities, Relationship Among the Three Sides of a Triangle
Quadrilaterals: Definitions, Properties, Knowing When a Quadrilateral Is a Special Figure
Relationship of Three or More Parallel Lines

EUCLIDEAN GEOMETRY (Cont'd)

Similarity, Ratio and Proportion, Definition of Similar Polygons, Triangle Proportionality, Methods of Proving Triangles Similar, Similarity and Dilation
Using Similar Triangles: To Find an Unknown Length, To Prove a Proportion, To Prove a Product
The Right Triangle: Proportions in the Right Triangle, The Pythagorean Theorem, Special Right Triangles
Perimeter and Area: Applying Right Triangles to Perimeter Problems, Applying Right Triangles to Area Problems, Perimeters and Areas of Similar Polygons
Indirect Proof
Trigonometry of the Right Triangle: Definitions of Trigonometric Ratios, Using a Calculator to Work with Trigonometric Ratios, Using the Trigonometric Ratios to Find Unknown Measures, Working With More Complicated Diagrams, Using Trigonometry to Solve Problems
Constructions
Summary Exercises

CIRCLES

Sectors, arc length, chords
Chords, secants, tangents
Arcs determined by angles
Inscribed quadrilaterals
Segments Intercepted by arcs
Equations of circles/graphs

MEASURING IN THE PLANE AND SPACE

Perimeter/Area of polygons
Circumference/area of circles
Rotations of two-dimensional object
Cross-sections of three-dimensional objects
Volume, surface area, lateral area
Compositions of polygons and circles
Density
Similarity

ANALYTIC GEOMETRY

Points and Distances, the Rectangular Coordinate System, Distances, Midpoint of a Line Segment
Partitioning a directed segment into a ratio
Slope of a Line: Meaning of a Slope, Possible Values for Slope, Slopes of Parallel and Perpendicular Lines Summary of Methods of Coordinate Geometry Proofs
Equations of Lines: General Form, Slope-intercept Form, When a Point is on a Line, Point-Slope Form, Summary of Equations of a line
Areas in the Coordinate Plane: Simple Areas, Drawing Horizontals and Verticals to Find Areas
Analytic Proof: Using General Coordinates in Formulas, Positioning Points That Have General Coordinates, Proving Geometric Theorems Analytically
Transformations: Types of Transformations, Reflection in a Line, Reflection in a Point, Translation, Rotation, Dilation
Mapping a polygon onto itself
Compositions of Transformations
Properties of Transformations
Identifying Transformations

EQUATIONS; SYSTEMS OF EQUATIONS

Linear Equations, Graphing a Linear Equation, Graphic Solution of a System of Linear Equations, Algebraic Solution of a System of Linear Equations, Using a System of Linear Equations to Solve Problems
Solving Quadratic Equations, Standard Form, Solution by Factoring, Using a Quadratic Equation to Solve Problems, Solution by Completing the Square, Solution by the Quadratic Formula
The Roots of a Quadratic Equation, The General Roots, When One or Both Roots Are Known
The Parabola, Nature of the Parabola $y = ax^2 + bx + c$, Graphing a Parabola
Using a Parabola to Solve $ax^2 + bx + c = 0$
Transformations of Parabolas
More Quadratic Curves, the Circle
Linear-Quadratic Systems/Graphic Solution/Algebraic Solution