

MATHEMATICS

General Mathematics, Geometry, and an Introduction to Differential Calculus

- I. GENERAL MATHEMATICS 25%
 - A. Simple and Compound Interest
 - B. Basic Counting
 - 1. The Multiplication Principle
 - 2. Permutations and Combinations
 - C. Probability of Equally Likely Events and Binomial Distribution

- II. GEOMETRY 65%
 - A. Right Triangles
 - 1. Pythagorean Theorem
 - 2. Special Right Triangles
 - B. Coordinate Geometry
 - 1. The Midpoint Formula
 - 2. Slope
 - 3. The Distance Formula
 - 4. Parallel and Perpendicular Lines
 - 5. Properties of Quadrilaterals in the x - y Coordinate Plane
 - C. Plane and Solid Figures
 - 1. Area and Properties of Polygons
 - 2. Surface Areas and Volumes of Three-Dimensional Figures
 - a. Prisms
 - b. Cylinders
 - c. Pyramids
 - d. Cones
 - e. Spheres
 - 3. Properties of Similar Figures
 - 4. Circles
 - a. Area
 - b. Angle Measures in Circles
 - c. Lengths of Tangents, Secants, and Intersecting Chords

III. INTRODUCTION TO DIFFERENTIAL CALCULUS 10%

- A. Average Rate of Change of Basic Polynomial Functions
- B. Basic Limits and Continuity
- C. First Derivative of Basic Polynomial Functions and Graphical Interpretation
- D. Equations of Tangent Lines