

# MATHEMATICS

## *Overview of Permutations and Combinations, Algebra, and Statistics*

- I. OVERVIEW OF PERMUTATIONS AND COMBINATIONS 10%
  - A. Multiplication Principle
  - B. Permutations
  - C. Combinations
  
- II. ALGEBRA 40%
  - A. Sequences and Series
    - 1. Arithmetic and Geometric Sequences
    - 2. Arithmetic and Geometric Series
    - 3. Sigma Notation
  - B. Polynomials
    - 1. Adding and Subtracting
    - 2. Multiplying
  - C. Binomial Expansion Theorem
  - D. Compound Interest
    - 1. Investing and Borrowing
    - 2. Annuities and Loans
  - E. Euler's Constant
  
- III. STATISTICS 50%
  - A. Descriptive Statistics
    - 1. Mean, Median, and Mode
    - 2. Range, Quartiles, and IQR
  - B. Measures of Variation
    - 1. Variance
    - 2. Standard Deviation
    - 3. Z-score

C. Basic Probability

1. Independent
2. Dependent

D. Probability Distributions

1. Expected Value
2. Variance and Standard Deviation

E. The Binomial Distribution

F. The Normal Distribution