

## GACE STANDARDS

- 0001 Understand number operations and basic principles of number theory.
- 0002 Understand the real and complex number systems.
- 0003 Understand algebraic operations and properties of functions and relations.
- 0004 Understand properties of linear equations and linear systems.
- 0005 Understand properties of quadratic functions.
- 0006 Understand properties of nonlinear functions.
- 0007 Understand properties of trigonometric functions and identities.
- 0008 Understand principles and applications of calculus.
- 0009 Understand the principles of measurement.
- 0010 Understand principles of Euclidean geometry.
- 0011 Understand coordinate and transformational geometry.
- 0012 Understand methods of collecting, organizing, and describing data.
- 0013 Understand the theory and applications of probability.
- 0014 Understand the process of analyzing and interpreting data to make statistical inferences.
- 0015 Understand how to use a variety of representations to communicate mathematical ideas and concepts and connections between them.
- 0016 Understand mathematical reasoning, the construction of mathematical arguments, and problem-solving strategies in mathematics and other contexts.

## NCATE/NCTM STANDARDS

### **Standard 1. Knowledge of Problem Solving.**

Candidates know, understand and apply the process of mathematical problem solving.

### **Standard 2. Knowledge of Reasoning and Proof.**

Candidates reason, construct, and evaluate mathematical arguments and develop an appreciation for mathematical rigor and inquiry.

### **Standard 3. Knowledge of Mathematical Communication.**

Candidates communicate their mathematical thinking orally and in writing to peers, faculty and others.

### **Standard 4. Knowledge of Mathematical Connections.**

Candidates recognize, use, and make connections between and among mathematical ideas and in contexts outside mathematics to build mathematical understanding.

### **Standard 5. Knowledge of Mathematical Representation.**

Candidates use varied representations of mathematical ideas to support and deepen students' mathematical understanding.

### **Standard 6. Knowledge of Technology.**

Candidates embrace technology as an essential tool for teaching and learning mathematics.

### **Standard 7. Dispositions.**

Candidates support a positive disposition toward mathematical processes and mathematical learning.

### **Standard 8. Knowledge of Mathematics Pedagogy.**

Candidates possess a deep understanding of how students learn mathematics and of the pedagogical knowledge specific to mathematics teaching and learning

### **Standard 9. Knowledge of Number and Operations.**

Candidates demonstrate computational proficiency, including a conceptual understanding of numbers, ways of representing number, relationships among number and number systems, and the meaning of operations.

### **Standard 10. Knowledge of Different Perspectives on Algebra.**

Candidates emphasize relationships among quantities including functions, ways of representing mathematical relationships, and the analysis of change.

### **Standard 11. Knowledge of Geometries.**

Candidates use spatial visualization and geometric modeling to explore and analyze geometric shapes, structures, and their properties.

### **Standard 12. Knowledge of Calculus.**

Candidates demonstrate a conceptual understanding of limit, continuity, differentiation, and integration and a thorough background in techniques and application of the calculus.

### **Standard 13. Knowledge of Discrete Mathematics.**

Candidates apply the fundamental ideas of discrete mathematics in the formulation and solution of problems.

### **Standard 14. Knowledge of Data Analysis, Statistics, and Probability.**

Candidates demonstrate an understanding of concepts and practices related to data analysis, statistics, and probability.

### **Standard 15. Knowledge of Measurement.**

Candidates apply and use measurement concepts and tools.