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## Discipline-Based Professional Teaching Standards For Teachers Of Mathematics

### I. **Mathematical Content**

Teachers responsible for mathematics instruction at all levels understand the key concepts and procedures of mathematics, including ideas from number systems and number theory, geometry and measurement, statistics and probability, algebra and functions, discrete mathematics and concepts of calculus, and have a broad understanding of the K-12 mathematics curriculum.

### II. **Mathematical Tasks**

Teachers of mathematics pose tasks that provide the stimulus for students to think about mathematical concepts and procedures, their connections with other mathematical ideas, and their applications to real-world contexts. These tasks encourage students to reason about mathematical ideas, and to formulate, grapple with and solve problems.

### III. **Mathematical Discourse**

Teachers of mathematics orchestrate discourse that is founded on mathematical ways of knowing and ways of communicating. This discourse fosters the development of critical mathematics processes – problem solving, reasoning, communication and making mathematical connections – and influences students' dispositions toward doing mathematics.

### IV. **Learning Environment**

Teachers of mathematics are responsible for creating an intellectual environment in which mathematical thinking is the norm. Teachers create an environment that supports and encourages mathematical reasoning and encourages students to make conjectures, experiment with alternative approaches to solving problems, and construct and respond to the mathematics arguments of others.

### V. **Analysis of Learning and Teaching**

Teachers of mathematics use a variety of strategies to continuously monitor students' capacity and inclination to analyze situations, frame and solve problems, and make sense of mathematical concepts and procedures. Teachers use such information about students to assess not just how students are doing, but also to appraise how well the mathematical tasks, discourse and environment are working together to foster students mathematical power and what changes need to be made in response.