Board of Teaching Rules Relating to Teacher Licensing
8710.4600 TEACHERS OF MATHEMATICS.

Subpart 1. Scope of practice. A teacher of mathematics is authorized to provide to students in grades 5 through 12 instruction that is designed to develop understanding and skill in mathematical content and perspectives.

Subpart 2. Licensure requirements. A candidate for licensure to teach mathematics in grades 5 through 12 shall:

A. hold a baccalaureate degree from a college or university that is regionally accredited by the association for the accreditation of colleges and secondary schools;

B. demonstrate the standards for effective practice for licensing of beginning teachers in part 8710.2000; and

C. show verification of completing a Board of Teaching preparation program approved under part 8700.7600 leading to the licensure of teachers of mathematics in subpart 3.

Subpart 3. Subject matter standard. A candidate for licensure as a teacher of mathematics must complete a preparation program under subpart 2, item C, that must include the candidate's demonstration of the knowledge and skills in items A to I.

D. A teacher of mathematics understands geometry and measurement from both abstract and concrete perspectives and is able to identify real world applications and to use geometric learning tools and models, including geoboards, compass and straight edge, rules and protractor, patty paper, reflection tools, spheres, and platonic solids. The teacher of mathematics must demonstrate knowledge of the following mathematical concepts and procedures and the connections among them:

(1) shapes and the ways shapes can be derived and described in terms of dimension, direction, orientation, perspective, and relationships among these properties;

(2) spatial sense and the ways shapes can be visualized, combined, subdivided, and changed to illustrate concepts, properties, and relationships;

(3) spatial reasoning and the use of geometric models to represent, visualize, and solve problems;

(4) motion and the ways in which ***rotation, reflection,*** and ***translation*** of shapes can illustrate concepts, properties, and relationships;

(5) formal and informal argument, including the processes of making assumptions; formulating, testing, and reformulating conjectures; justifying arguments based on geometric figures; and evaluating the arguments of others;

(6) ***plane,*** solid, and ***coordinate geometry systems*** including relations between ***coordinate and synthetic geometry***, and generalizing geometric principles from a two-dimensional system to a three-dimensional system;

(7) attributes of shapes and objects that can be measured, including length, area, volume, capacity, size of angles, weight, and mass;

(8) the structure of systems of measurement, including the development and use of measurement systems and the relationships among different systems;

(9) measuring, estimating, and using measurements to describe and compare geometric phenomena;

(10) systems of geometry, including ***Euclidean, non-Euclidean, coordinate, transformational, and projective geometry***;

(11) transformations, coordinates, and vectors, including polar and parametric equations, and the use of these in problem solving;

(12) ***three-dimensional geometry*** and its generalization to other dimensions;

(13) ***topology***, including topological properties and transformations;

(14) extend informal argument to include more rigorous proofs; and

(15) extend work with two-dimensional right triangles including unit circle trigonometry.

Introduction 

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