

SAMPLE COMPREHENSIVE EXAM - MATHEMATICS EDUCATION

In NCTM's Principles and Standards for School Mathematics, the Reasoning and Proof Standard states:

Instructional programs from prekindergarten through grade 12 should enable all students to--

recognize reasoning and proof as fundamental aspects of mathematics;

make and investigate mathematical conjectures;

develop and evaluate mathematical arguments and proofs;

select and use various types of reasoning and methods of proof.

1. Describe two specific methods for incorporating this standard into your classroom. Be sure to describe teaching methods, not activities, that you think would be appropriate.
2. Describe two activities that would help students achieve this standard. For each activity, specify:

the objective(s) of the activity,

the grade level, and

the procedures--what would the teacher do and what would the students do. Identify questioning techniques that the teacher might employ and discussions with students which would help accomplish the objectives.