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### Unanswered Questions and Incorrect Proofs

The speaker will discuss the value of both unanswered questions and incorrect proofs in the teaching of mathematics. Included in the talk will be a discussion of the speaker's own experiences when trying to solve various unanswered questions posed to him in an undergraduate geometry course.

Ivonne Ortiz  
SUNY at Binghamton

### Gateway to Graduate School: The Undergraduate Algebra Seminar

During the last two years of my doctoral program at Binghamton, I participated in the program Preparing Future Faculty, which is designed to better equip doctoral students to enter the academic world. My participation in the program included working with students who were preparing talks for the Undergraduate Algebra Seminar. The Seminar serves as a catalyst in deciding to go on to graduate school. In this talk, I will discuss my experiences and thoughts on it.

Michael Bacon  
SUNY at Oneonta

### Fugue in D12 Minor: The Mathematics of Scales and Chords

Ever wonder how many scales or chords there are in contemporary western music? A classic problem in a beginning discrete mathematics course reads as follows: "How many beaded necklaces containing 4 beads can be made with beads of two colors?" This problem serves nicely as an introduction to Polya enumeration techniques. There are many applications of Polya enumeration, one such application has arisen from Bach's popularization of well-tempered tuning, that is: In western 12-tone even tempered tuning, allowing key transposition and interval equivalence, how many possible scales/chords can be constructed?