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The Mathematics of Assessment

Online assessment of mathematics has developed in scope, sophistication and extent of use. Computer algebra systems have increasingly been used to support online assessment and publishers are providing exercises to accompany traditional books.

This talk will provide a survey of the interesting mathematics associated with online computer aided assessment (CAA). This includes randomly generating feasible problems, and establishing the properties of students' answers. The desire to automate a process throws into sharp detail the ambiguities and inconsistencies which traditional assessment might tolerate. For example, what does the word “simplify” mean, or what does it mean for two mathematical expressions to be “the same”? We will focus on assessing the answers to algebra story problems.

These issues concern teaching more generally, since they strike at the heart of *meaning* in mathematics. Ultimately students would gain valuable insights into our subject through an appreciation of these issues. This talk aims to raise awareness of, and appreciation for, the subtle issues associated with the mathematics of assessment.