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A study of students' readiness to learn calculus.

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Summary: The Calculus Concept Readiness (CCR) instrument assesses foundational understandings and reasoning abilities that have been documented to be essential for learning calculus. The CCR Taxonomy describes the understandings and reasoning abilities assessed by CCR. The CCR is a 25-item multiple-choice instrument that can be used as a placement test for entry into calculus and to assess the effectiveness of precalculus level instruction. Results from administering the CCR to first semester calculus students at the beginning of the semester revealed severe weaknesses in students' foundational knowledge and reasoning abilities for learning calculus. Correlating CCR results with course grades revealed that students with higher CCR scores are better prepared to succeed in beginning calculus. The CCR data further identified specific ways of thinking and concepts for which precalculus instruction could be improved to influence student learning and preparation for calculus.

Classification: C45 C35 I15

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