

1086-VA-2664 **John Gruver*** (jgruver@ucsd.edu), 6475 Alvarado Road, Suite 206, San Diego, CA 92129. *The Danger of Narrow Calculus Assessments and How to Broaden Them.*

In this presentation I argue narrow Calculus assessments should be broadened to test for mathematical proficiency. Narrow tests can dangerously provide an illusion of competence to instructors and misrepresent mathematics to students. Flexer (1991) showed that students who had a high stakes exam at the end of the year did well on the problem “ $87 - 24$ ” (83% correct), but did poorly on “subtract 24 from 87” (only 66% correct). A control district with no high stakes exam did similarly on both items (77% correctly and 73% correctly respectively). This suggests repeated practice of a particular problem type leads to greater mastery of that type, but the competence is highly contextualized. Also, students take cues from assessments about what to study. If students are only given problems that require predictable computations, they may begin to think Calculus is only about computing. In order to avoid these problems, we must give our students balanced assessments that test for mathematical proficiency. In this presentation, I will show how the NRC’s (2001) definition of mathematical proficiency can be used to critically analyze assessments. Also, I will show examples of items, which could appear on a balanced assessment. (Received September 25, 2012)