

1077-VC-2618 **Stephen M Walk*** (smwalk@stcloudstate.edu), Dept. of Mathematics & Statistics, ECC 139,
St. Cloud State University, 720 4th Ave. S., St. Cloud, MN 56301-4498. *Reverse Mathematics and
the Lost Proofs of Calc One.*

I'm thinking of four theorems. All four are interesting, useful, even *vital* for first-semester calculus. Nevertheless, for the first few semesters I taught calculus, I didn't bother to dignify those theorems with proofs in class. They seemed too obvious to need proof, and their proofs seemed too difficult to be enlightening.

Then reverse mathematics changed my mind. Reverse mathematics is a program in the foundations of mathematics that aims to determine which set-existence axioms are logically necessary to prove established theorems—such as those four. In this talk, I will describe how an encounter with reverse mathematics not only convinced me that my students should see proofs of the four theorems, but also helped me to make the proofs palatable for students. (Received September 22, 2011)