

1046-U1-1716

**Jason Howard Martin\*** (jmartin@ou.edu), Department of Mathematics, University of Oklahoma, 601 Elm Ave. PHSC 423, Norman, OK 73019. *Expert vs. Novice Understanding of Convergence of Taylor Series*. Preliminary report.

Taylor series is a topic briefly covered in most university calculus sequences. In many cases it constitutes only one or two sections of a calculus textbook. With this limited exposure, what do calculus students really understand about the convergence of Taylor series? Do they think of Taylor series convergence as a sequence of converging polynomials? Do they think of convergence as a remainder going to zero? Do they think the Taylor series for sine really "equals" sine? Or is it merely a good estimation for sine? If our goal is to turn novices into experts, then we should also consider how experts comprehend Taylor series. Therefore, this presentation will report qualitative research incorporating questionnaires and interviews to help shed light on expert and novice understanding of the convergence of Taylor series. Using insights from previous research on the notion of limit, we will compare and contrast the mental imagery of experts and novices and the situations in which they employ their different images. (Received September 16, 2008)