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800 N. State College Blvd., Fullerton, CA 92831. *What do we mean by mathematical proof?*

Mathematical proof lies at the foundations of mathematics, but there are several notions of what mathematical proof is, or might be. There is a certain amount of tension between “formal” definitions of proof and how we, as a mathematical community, actually write, read, and use proofs. This presentation will review the body of literature that explores this tension, with an emphasis on how this tension manifests in the mathematics classroom. We will discuss how the various roles of mathematical proof affect how we define proof, the range of ideas about proof held by students, and pedagogy intended to help communities of students develop standards of proof that agree with those held by the larger community of mathematicians. (Received July 22, 2010)