

**ZMATH 2012c.00423**

**Mejia-Ramos, Juan Pablo; Fuller, Evan; Weber, Keith; Rhoads, Kathryn; Samkoff, Aron**  
**An assessment model for proof comprehension in undergraduate mathematics.**

Educ. Stud. Math. 79, No. 1, 3-18 (2012).

Summary: Although proof comprehension is fundamental in advanced undergraduate mathematics courses, there has been limited research on what it means to understand a mathematical proof at this level and how such understanding can be assessed. In this paper, we address these issues by presenting a multidimensional model for assessing proof comprehension in undergraduate mathematics. Building on Yang and Lin's (Educational Studies in Mathematics 67:59-76, 2008, see ME 2008a.00274 ) model of reading comprehension of proofs in high school geometry, we contend that in undergraduate mathematics a proof is not only understood in terms of the meaning, logical status, and logical chaining of its statements but also in terms of the proof's high-level ideas, its main components or modules, the methods it employs, and how it relates to specific examples. We illustrate how each of these types of understanding can be assessed in the context of a proof in number theory.

*Classification:* E55 D65

*Keywords:* proof comprehension; proof reading; assessment; undergraduate mathematics education  
doi:10.1007/s10649-011-9349-7