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Sarah Hanusch* (sh1609@txstate.edu), Department of Mathematics, Texas State University, 601 University Drive, San Marcos, TX 78666, and **Sonalee Bhattacharyya** (sb1212@txstate.edu). *Examining proficiency with operations on irrational numbers.*

Fluency with our number system is a critical part of mathematics. Understanding how rational and irrational numbers work and fit in to the number system as a whole is at the foundation of a good understanding of mathematics (Fischbein, Jahiam, & Cohen, 1995). In this study, we present developmental mathematics students with a task which tests understanding of the closure of irrational numbers under addition and multiplication. We analyze the data with the strands of proficiency framework from *Adding It Up* (Kilpatrick, Swafford, & Findell, 2001), searching for evidence of each strand. The results indicate that no individual strand is particularly strong or weak among all of the students, yet small example spaces of irrational numbers may be to blame for many errors from the students. We conclude with implications for the classroom. (Received September 08, 2014)