Problem of the Week #2
09/07/2015 to 09/20/2015

Given a positive, three-digit integer $n$, define $f(n)$ to be the sum of the three digits of $n$, their three products in pairs, and the product of all three digits (e.g., $f(625) = 6+2+5+6\cdot2+6\cdot5+2\cdot5+6\cdot2\cdot5 = 125$). Find all positive, three-digit integers $n$ such that $n = f(n)$.

Solutions to the last problem were submitted by Sandipan Dey (India), Mark Girard (TU alum), James Guerry (Bell, FL), Kipp Johnson (Beaverton, OR), Hari Kishan (India), Yehuda Koslowe (Bergenfield, NJ), Tin Lam (St. Louis, MO), Zach Moring (TU), Tom O’Neil (Central Coast, CA), Krishna Sambath (Houston, TX), Charlie Stein (TU), and Dennis Ugolini (TU).

Solutions for this problem can be submitted to Dr. Brian Miceli at bmiceli@trinity.edu, or you can drop them off at his office, MMH 115F. People with correct solutions will be acknowledged on the next problem. For old problems, follow the “Problem of the Week” link at www.trinity.edu/bmiceli, and if you like these problems, you may be interested in the Putnam Exam. More information on the Putnam Exam can also be found at www.trinity.edu/bmiceli.