Problem of the Fortnight
A Unique Distribution

You have 100 tiles each numbered 1. You place all tiles into a bag and draw out two. Write the sum of the product and the sum of the two numbers on a new tile and place this new tile into the bag. Repeat this process until 1 tile is left. For example, the first step you will always place a 3 into the bag, but during the next step you have a possibility of drawing that 3 with a 1 and putting in a 7. What numbers are possible to have written on the last tile and how often do they show up?

The Problem of the Week is open to all undergraduate students, regardless of major. Submit your written solution, along with your name and e-mail address, to the Math Department office (Founders Hall Room 2006) by 2:00 p.m. on Friday, October 9, 2015. The person who submits the best solution will win a $10.00 gift certificate to the Barista’s Daily Grind; the best solution will be posted with the next Problem of the Week on Monday, October 12.