

# Problem Solving Fall 2007

## Problem Set #1

1. Show that for  $n \geq 6$ , any square can be subdivided into  $n$  smaller squares, not all necessarily of the same size.
2. Show that every number in the sequence

1007, 10017, 100117, 1001117, \dots

is divisible by 53.

3. Find the area of a convex octagon that is inscribed in a circle and has four consecutive sides of length 3 and the remaining four sides of length 2. (From the 1978 Putnam Exam)