

## Problem of the Week

### Problem D

### PRODUCTivity

The “*digit product*” of a positive integer is the product of the individual digits of the integer.

For example, the digit product of 234 is  $2 \times 3 \times 4 = 24$ . Other numbers also have a digit product of 24. For example, 2223, 113 181 and 38 each have a digit product of 24. The number 38 is the smallest positive integer with a digit product of 24.

There are many positive integers whose digit product is 2000.

Determine the smallest positive integer whose digit product is 2000.

