



## Problem of the Week

### Problem E

#### Powerful Factors

The product of the integers 1 to 64 can be written in an abbreviated form as  $64!$  and we say 64 *factorial*. So  $64! = 64 \times 63 \times 62 \times \cdots \times 3 \times 2 \times 1$ .

In general, the product of the positive integers 1 to  $m$  is

$$m! = m \times (m - 1) \times (m - 2) \times \cdots \times 3 \times 2 \times 1.$$

Determine the largest positive integer value of  $n$  so that  $64!$  is divisible by  $2016^n$ .



We need more powers

