



## Problem of the Week Grade 11 and 12

### Powerfully Perfect Squares

The prime factorization of 20 is  $2^2 \times 5$ .

The divisors of 20 are:

$$2^0 5^0 = 1, 2^0 5^1 = 5, 2^1 5^0 = 2, 2^1 5^1 = 10, 2^2 5^0 = 4, \text{ and } 2^2 5^1 = 20.$$

The number 20 has 6 divisors. Two of the divisors, 1 and 4, are perfect squares.

How many divisors of  $2012^{2012}$  are perfect squares?

