Problem of the Week

Problem D

Squares in a Square

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

The number 20 has 6 positive divisors. They are:

$$2^0 5^0 = 1,\ 2^0 5^1 = 5,\ 2^1 5^0 = 2,\ 2^1 5^1 = 10,\ 2^2 5^0 = 4,\ \ 2^2 5^1 = 20$$

Two of the divisors, 1 and 4, are perfect squares.

How many positive divisors of 36^3 are perfect squares?