

Revenge of the squares

I think it's time to not only solve problems but also create some.

So here is my first attempt:

Given a number calculate the product N of their digits bigger than zero. The output is the number R of different presentations of N in the form A^2+B^2 with A and B being positive integers including zero. 1^2+2^2 and 2^2+1^2 are not different presentations. So for input 5 the output is 1.

See also [this similar task](#).

Input

One hundred tests with one positive integer $< 10^{20}$.

Output

Print the illustrated above number R for each test.

Example

Input:

5

7

78185824586267361855

Output:

1

0

3