

Revenge of the squares (variation)

Given a number N calculate 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.

Input

Fifty tests with one positive integer $< 10^9$.

Output

Print the illustrated above number R for each test.

Example

Input:

5
7
986244509

Output:

1
0
2