Sums of Squares (prob10)

The Problem

Vivian likes numbers that can be represented as sums of distinct squares, but she doesn't like consecutive squares to be in her sums. For example, she likes 117 because

$$1^2 + 4^2 + 6^2 + 8^2 = 117$$

Then she realizes that she can obtain the same sum with a different set of squares, none of which are consecutive:

$$1^2 + 4^2 + 10^2 = 117 \quad \text{or} \quad 6^2 + 9^2 = 117$$

Now, Vivian wants to know, given some positive integer, K, how many sets of perfect squares add up to K, where no two of the squares are squares of consecutive integers. Write a program to answer her query!

Input

The first line of the input will contain a single positive integer, N ($N \leq 10000$), representing the number of test cases. Each of the following N lines will contain a single positive integer, K ($K \leq 10000$), representing the queried integer.

Output

For each input K, output on a line by itself the number of ways K can be represented as the sum of a set of squares, none of which are consecutive.

Sample Input

```
4
117
200
53
5
```

Sample Output

```
3
3
2
0
```