CODECON

Memory Limit: 1024 MB
Time Limit: 5 s

Sum Sum Cryptography (150 points)

Introduction

Alice and Bob are sending encrypted messages to each other. Your task is to intercept and decode the message that Alice has received.

Bob sends Alice a positive integer N) as the message, and Alice will decode each message by solving the equation $x^2 + y^2 + z^2 = N$ where x, y, z are positive non-zero integers.

To create the decoded output, Alice sums up all components of all unique `(x,y,z)` tuples together.

For example, (1,2,3) and (2,3,4) are unique tuples; (1,2,3) and (2,3,1) are not unique tuples.

Note that an entirely naive solution will timeout!

Input Specifications

The only input line will be a number $3 \leq N \leq 3000000$.

Output Specifications

The output will contain one positive integer as the decoded result.

Sample Input/Output

Input

```
42
```

Output

```
10
```

Explanation

For 42, the unique (x, y, z) would be (1, 4, 5), and 1 + 4 + 5 is 10.

Input

```
99
```

Output

```
47
```

Explanation

For 99, the unique (x, y, z) could be (1, 7, 7), (3, 3, 9), (5, 5, 7), and 1 + 7 + 7 + 3 + 3 + 9 + 5 + 5 + 7 = 47

Input

1234566

Output

478112