

# Project Euler #46: Goldbach's other conjecture



This problem is a programming version of [Problem 46](#) from [projecteuler.net](#)

It was proposed by Christian Goldbach that every odd composite number can be written as the sum of a prime and twice a square.

$$\begin{aligned}9 &= 7 + 2 \times 1^2 \\15 &= 7 + 2 \times 2^2 \\21 &= 3 + 2 \times 3^2 \\25 &= 7 + 2 \times 3^2 \\27 &= 19 + 2 \times 2^2 \\33 &= 31 + 2 \times 1^2\end{aligned}$$

It turns out that the conjecture was false as you'll discover some values can't be represented as a sum of prime and twice a square.

You are given  $N$ , print the number of ways  $N$  can be represented as a sum of prime and twice a square.

Example **15** can be represented in two ways as  $15 = 7 + 2 \times 2^2$  and  $15 = 13 + 2 \times 1^2$

## Input Format

The first line contains an integer  $T$ , i.e., number of test cases.

Next  $T$  lines will contain an integer  $N$ .

## Constraints

$$1 \leq T \leq 100$$

$$9 \leq N < 5 \times 10^5$$

$$N \in \{\text{odd composite number}\}$$

## Output Format

Print the values corresponding to each test case.

## Sample Input

```
2
9
15
```

## Sample Output

```
1
2
```