

# Project Euler #218: Perfect right-angled triangles

This problem is a programming version of [Problem 218](#) from [projecteuler.net](#)

Consider the right angled triangle with sides  $a = 7$ ,  $b = 24$  and  $c = 25$ . The area of this triangle is 84, which is divisible by the perfect numbers 6 and 28.

Moreover it is a primitive right angled triangle as  $\gcd(a, b) = 1$  and  $\gcd(b, c) = 1$ .

Also  $c$  is a perfect square.

We will call a right angled triangle perfect if

- it is a primitive right angled triangle
- its hypotenuse is a perfect square

We will call a right angled triangle super-perfect if

- it is a perfect right angled triangle and
- its area is a multiple of the perfect numbers 6 and 28.

How many perfect right-angled triangles with  $c \leq n$  exist that are not super-perfect?

## Input Format

First line of each test file contains a single integer  $q$  that is the number of queries.  $q$  lines follow, each containing an integer  $n$  - an upper bound of the largest side of the triangle.

## Constraints

- $1 \leq q \leq 100000$
- $25 \leq n \leq 2 \times 10^{18}$

## Output Format

Print exactly  $q$  lines with a single integer on each: an answer to the corresponding query.

## Sample Input 0

```
1
25
```

## Sample Output 0

```
0
```

## Explanation 0

As we can see from the problem statement, the only perfect triangle with  $c \leq 25$  is super-perfect.