Project Euler #131: Prime cube partnership

HackerRank

This problem is a programming version of Problem 131 from projecteuler.net

There are some prime values, p, for which there exists a positive integer, n, such that the expression $n^3 + n^2 p$ is a perfect cube.

For example, when $p = 19$, $8^3 + 8^2 \cdot 19 = 12^3$.

What is perhaps most surprising is that for each prime with this property the value of n is unique, and there are only four such primes below one-hundred.

How many primes below L have this remarkable property?

Input Format

The first line of input contains T, the number of test cases.

Each test case consists of one line containing a single integer, L.

Constraints

$1 \leq T \leq 10^5$
$1 \leq L \leq 25 \times 10^{12}$

But for test cases worth 50% of the total score: $1 \leq L \leq 10^6$

Output Format

For each test case, output a single line containing a single integer, the answer for that test case.

Sample Input

```
2
5
100
```

Sample Output

```
0
4
```