

Project Euler #133: Repunit nonfactors

This problem is a programming version of [Problem 133](#) from [projecteuler.net](#)

A number consisting entirely of ones is called a repunit. We shall define $R(k)$ to be a repunit of length k ; for example, $R(6) = 111111$.

Let us consider repunits of the form $R(10^n)$.

Although $R(10)$, $R(100)$, or $R(1000)$ are not divisible by 17 , $R(10000)$ is divisible by 17 . Yet there is no value of n for which $R(10^n)$ will divide by 19 . In fact, it is remarkable that 11 , 17 , 41 , and 73 are the only four primes below one-hundred that can be a factor of $R(10^n)$.

Given L , find the sum of all the primes below L that will never be a factor of $R(10^n)$.

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

In all but the last two test files:

$$T = 1$$
$$1 \leq L \leq 300000$$

In the second-to-last test file:

$$1 \leq T \leq 100000$$
$$1 \leq L \leq 3000000$$

In the last test file:

$$1 \leq T \leq 100000$$
$$1 \leq L \leq 30000000$$

Output Format

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

Sample Input

```
1
100
```

Sample Output

```
918
```

