

# 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
```