Project Euler #133: Repunit nonfactors

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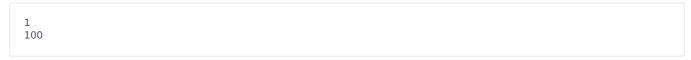$1 \leq L \leq 3000000$

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
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Sample Output

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918
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