

In many applications very large integers numbers are required. Some of these applications are using keys for secure transmission of data, encryption, etc. In this problem you are given a number, you have to determine the number of digits in the factorial of the number.

Input

Input consists of several lines of integer numbers. The first line contains an integer n , which is the number of cases to be tested, followed by n lines, one integer $1 \leq n \leq 10^7$ on each line.

Output

The output contains the number of digits in the factorial of the integers appearing in the input.

Sample Input

```
2
10
20
```

Sample Output

```
7
19
```