The factorial function, $n! = 1 \cdot 2 \cdot \ldots \cdot n$, has many interesting properties. In this problem, we want to determine the maximum number of integer terms (excluding 1) that can be used to express $n!$. For example:

$$8! = 1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \cdot 6 \cdot 7 \cdot 8 = 2 \cdot 3 \cdot 2 \cdot 2 \cdot 5 \cdot 3 \cdot 2 \cdot 7 \cdot 2 \cdot 2 \cdot 2 = 2^7 \cdot 3^2 \cdot 5 \cdot 7$$

By inspection, it is clear that the maximum number of terms (excluding 1) that can be multiplied together to produce 8! is 11.

Input

The input for your program consists of a series of test cases on separate lines, ended by end-of-file. Each line contains one number, n, $2 \leq n \leq 1000000$.

Output

For each test case, print the maximum number of factors (excluding 1) that can be multiplied together to produce $n!$. Put the output from each test case on a separate line, starting in the first column.

Sample Input

```
2
1000000
1996
5
8
123456
```

Sample Output

```
1
3626619
5957
5
11
426566
```