

# N - Factorial Factors

Have you ever heard of the famous computer scientist from Stanford University named Donald Knuth? In his book *The Art of Computer Programming*, he points to an example of the factorial (in particular 8!) in the Hebrew book of creation. The factorial function,  $n! = 1 \cdot 2 \cdot \dots \cdot n$ , 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:

$$8! = 1 * 2 * 3 * 4 * 5 * 6 * 7 * 8 = 2 * 3 * 2 * 2 * 5 * 3 * 2 * 7 * 2 * 2 * 2$$

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	Sample Output
2	1
1000000	3626619
1996	5957
5	5
8	11
123456	426566