

Problem A

Factorial

The *factorial* of a positive integer number N , denoted as $N!$, is defined as the product of all positive integer numbers smaller or equal to N . For example $4! = 4 \times 3 \times 2 \times 1 = 24$.

Given a positive integer number N , your task is to write a program to determine the smallest number k such that $N = a_1! + a_2! + \dots + a_k!$, where every a_i , for $1 \leq i \leq k$, is a positive integer number.

For example, if $N = 10$ the answer is 3, because it is possible to write N as the sum of 3 factorial numbers: $10 = 3! + 2! + 2!$. If $N = 25$ the answer is 2, because it is possible to write N as the sum of 2 factorial numbers: $25 = 4! + 1!$.

Input

The input consists of a single line, which contains an integer N ($1 \leq N \leq 10^5$).

Output

Your program must output a single line, containing an integer number, representing the smallest amount of factorial numbers which sum equals N .

Input example 1 10	Output example 1 3
Input example 2 25	Output example 2 2