

## 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  $N$ .

<b>Input example 1</b> 10	<b>Output example 1</b> 3
<b>Input example 2</b> 25	<b>Output example 2</b> 2