

## Problem K. Maraam

In a cold day of winter MohammadReza and Danny are bored. So MohammadReza suggested a game called Maraam. The game is played as follows: MohammadReza writes down a number and Danny tries to guess it. Danny knows that MohammadReza's number is an integer between 1 and  $n$ , inclusive. Danny can guess any number  $x$  between 1 and  $n$ , and MohammadReza will tell him what is the greatest common divisor of  $x$  and his number.

Here's a possible course of the game for  $n = 6$ . Danny starts with guessing 3, and MohammadReza replies that the greatest common divisor of 3 and his number is 1. That means that MohammadReza's number can't be 3 or 6, but can still be 1, 2, 4 or 5. Danny continues with guessing 2, and MohammadReza replies 2. That means that MohammadReza's number can't be 1 or 5, and the only two remaining choices are 2 and 4. Finally, Danny guesses 4, and MohammadReza replies 2. That means that MohammadReza's age is 2, and the game is over.

Danny needed three guesses in the above example, but it's possible to always determine MohammadReza's number in at most two guesses for  $n = 6$ . The optimal strategy for Danny is: at the first step, guess 6. If MohammadReza says 1, then it's 1 or 5 and he can check which one by guessing 5. If MohammadReza says 2, then it's 2 or 4, and he can check by guessing 4 as we've seen above. If MohammadReza says 3, then we already know the answer is 3. Finally, if MohammadReza says 6, the answer is 6.

What is the number of guesses required in the worst case if Danny guesses optimally for the given  $n$ ?

### Input

The input file contains one integer  $n$ . ( $2 \leq n \leq 10000$ )

### Output

Output one integer — the number of guesses Danny in the worst case scenario will need to make.

### Examples

test	answer
6	2