

Prime Game

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 512 megabytes

Iroha and Kaguya have recently become fascinated by a mathematical game based on integers.

Initially, they share a positive integer n . The two players take turns performing operations; a single round is defined as both Iroha and Kaguya completing one operation each. In each round:

1. Iroha goes first: She must choose a non-negative integer x ($0 \leq x < n$) and replace the current n with $n + x$.
2. Kaguya goes second: She must choose a **prime number** p that divides the current n (i.e., $p \mid n$) and replace the current n with $\frac{n}{p}$.

The above operations repeat continuously. If $n = 1$ after the end of any round, the game ends immediately.

During the game, Iroha aims to maximize the total number of rounds played, while Kaguya aims to minimize the total number of rounds. Assuming both players are perfectly rational and adopt optimal strategies, please determine the total number of rounds the game will ultimately last.

Input

The first line contains an integer n ($1 \leq n \leq 10^{18}$), representing the initial number of the game.

Output

Output a single line containing an integer, representing the total number of rounds the game will last given that both players play optimally.

Examples

standard input	standard output
1	0
9	4
16	5