Lights [IV]

time limit per test: 3 seconds (7 seconds for Python)
memory limit per test: 768 megabytes
input: standard input
output: standard output
points: 100 · problem code: lights4 · author: glipR

The blurb for this problem is the same as Lights [I], save for the statement of the problem.

You stand before an infinitely long corridor containing lights and their respective switches. You'd like to turn a subset of the lights on using little robots that will flick certain switches infinitely along the corridor.

In this third problem, you'll be sending an infinite number of robots. The i^{th} robot will flick switches according the the following rule:

Robot i flicks light switch j if i divides j. In other words, the i^{th} robot flicks every i^{th} switch.

A light switch stays on if after all robots are done, it has been flicked a ***prime*** number of times. For example, Light Switch #4 is on because it was flicked by Robot 1, 2 and 4 (3 is a prime). While Light Switch #1 is off because it was flicked by Robot 1 only (1 is not a prime number).

Input

Input will contain a single integer n, representing how many lights we'll be considering

Output

Output will contain a single integer, representing the total number of lights at position at or before the n^{th} light that are on at the end of execution.

Constraints

- $1 \leq n \leq 5 \times 10^8$

Examples

Input

```
3
```

Output

```
2
```

Explanation

1 is the only light switch that is turned off.

Input

```
6
```

Output

```
4
```

Explanation

1, and 6 are the only light switch that are turned off.

Input

```
10
```

Output

```
6
```

Explanation

2, 3, 4, 5, 7, 9 are the only light switches that are turned on.