



FTE Screening Test Batch of 2021 - Mock 1

Aug 02, 2020, 08:30 PM IST - Aug 02, 2020, 10:30 PM IST

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LIVE EVENTS

INSTRUCTIONS

PROBLEMS

SUBMISSIONS

LEADERBOARD

ANALYTICS

JUDGE

[← Problems](#) / Count open doors

Count open doors

Max. score: 100

This problem is no longer available for practice. Apology for any inconvenience!

You are trapped in a strange land and you need to escape!

Thankfully, there is a row of many magical doors in this strange land, that leads back to our world and you can use any one of them to escape.

The doors, however, behave somewhat peculiarly.
Each second, some doors close while others may open!

After looking at the doors opening and closing for some time, you notice the following pattern :

- Initially, all doors are closed.
- After the i -th second, every i -th door changes it's state - if it was open previously, it now closes and vice versa (doors are 1-indexed, the first door is marked 1 and the $n - th$ door is marked n).

Now, you know that depending on your starting position, you will reach this row of doors after a certain number of seconds, say N .
Can you figure out how many possible options(open doors) you will have once you reach the row of doors?

See the sample test case for clarifications.

Input Format

A single integer denoting how long it would take you to reach the row of doors.

Output Format

A single integer denoting the number of open doors when you reach the row of doors.

SAMPLE INPUT



3

SAMPLE OUTPUT



1

?

Explanation

In the beginning, all doors are closed.
Let us represent their state as : [closed,closed,closed]

After t = 1sec, every "1-th" door changes state, meaning their state now becomes [open,open,open]
After t = 2sec, every 2nd door changes state, meaning only the 2nd door will change state (4th onwards is not considered since we only have 3 doors) and their state becomes : [open,closed,open]
After t = 3sec, every 3rd door changes state, meaning only the 3rd door will change state, meaning their state becomes [open,closed,closed].

Hence, after N (=3) seconds, we have only 1 open door.

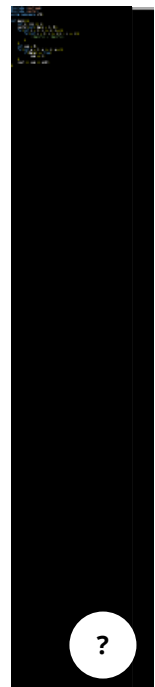
Time Limit:	0.13 sec(s) for each input file.
Memory Limit:	1 MB
Source Limit:	1024 KB
Marking Scheme:	Score is assigned if any testcase passes.
Allowed Languages:	Bash, C, C++, C++14, C++17, Clojure, C#, D, Erlang, F#, Go, Groovy, Haskell, Java, Java 8, Java 14, JavaScript(Rhino), JavaScript(Node.js), Julia, Kotlin, Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, Python 3.8, R(RScript), Racket, Ruby, Rust, Scala, Swift-4.1, Swift, TypeScript, Visual Basic

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CODE EDITOR

Save C++17 (g++ 5.4.0) ↗ ⚙

```
1 #include <iostream>
2 #include <vector>
3 using namespace std;
4
5 int main(){
6     int n; cin >> n;
7     vector<int> dp(n + 1, 0);
8     for(int i = 1; i <= n; i++){
9         for(int j = 1; j <= n/i ; j += i){
10             //dp[i*j] = !dp[i*j];
11         }
12     }
13     int sum = 0;
14     for(int a = 1; a <= n; a++){
15         if(dp[a] == true)
16             sum += 1;
17     }
18     cout << sum << endl;
19 }
20
```




--NORMAL-- 1:1 vim



☒ Provide custom input

COMPILE & TEST SUBMIT

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LIVE EVENTS

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