Bangladesh Artificial Intelligence Olympiad (Preliminary)

2:06:05

Dashboard

A. Welcome to Bang...
B. Take Angle, Giv...
C. Odd Subset XOR
D. Can you predict...
E. Cycle of life
F. Lost in bracket...
G. Sum in summer
H. I think, theref...

Announcements
Clarifications
Standings
Submissions

Resources

E. Cycle of life

Limits 1s, 512 MB

Pritom has discovered a mathematical game involving the divisors of integers. He finds it intriguing that every integer greater than 1 can be reduced to 1 by successively dividing the number by one of its divisors. Fascinated by this property, Pritom decides to analyze the game mathematically.

Pritom wants to understand how many divisions, on average, it will take to reduce a number N to 1 by repeatedly selecting a divisor of N (including N itself) and dividing N by this divisor. Your task is to help Pritom calculate the expected number of divisions required to terminate the game for various starting values of N.

Input

- The input begins with an integer T, representing the number of test cases $(T \leq 10000)$.
- Each test case consists of an integer N, where $1 \leq N \leq 100,000$ representing the starting number for that game instance.

Output

- For each number, output the expected number of steps in separate lines.

Sample

Input	Output
3	0.000000000
1	2.000000000
2	3.033333333
50	

Your answers should be correct to at least 5 digits after decimal point.

Submit

Choose a programming language, select your solution file, and click on Submit.

Python Python 3.12

Choose File No fi...osen

Up to 150 kB.

Submit Open Editor

Clarifications Request

No clarifications yet