

# Help Tohu

Tohu wants to enter Moscow State University, and he must pass the math exam. He does not know math, and asks you to help him. The problem is to find the sum  $S_n = a_1 + a_2 + \dots + a_n$  of the sequence  $\{a_n\}$  on condition  $\forall k \in \mathbb{N}: a_1 + 2a_2 + \dots + ka_k = \frac{k+1}{k+2}$

## Input

First line contains single integer  $T \leq 20000$  - the number of test cases.

Each of the next  $T$  lines contains single integer  $1 \leq n \leq 10^9$ .

## Output

For each  $n$  output the value  $S_n$  with 11 digits after decimal point.

## Example

**Input:**

2  
2  
5

**Output:**

0.70833333333  
0.73809523810