Sum the Series

Nilendu is a brilliant student of Mathematics and always scores A+ in it. His professor RamjiLal is quite impressed seeing his mathematical skills and asks him to sum the following series:

1/3 + 2/21 + 3/91 + 4/273 + ...

But the fact is Nilendu is quite lazy to do his assignment. He has to watch a film and many other activities to do. So he asks you for your help. Will you be able to solve it ??

Input

Input consists of **t** (number of test cases), then **t** line follows, each containing an integer **N** (1 <= N <= 10,000).

Output

A single line containing the sum upto **Nth** integer (rounded upto 5 digits)

Example

Input:
5
1
2
3
4
5

 Output:
0.33333
0.42857
0.46154
0.47619
0.48387

Edit: The score is your source length. The smaller your code is, the more point you will get. All the solutions have been rejudged !!!