

Sum The Amazing Series

Consider the series

$$(1 / 5) + (5 / 6) + (9 / 11) + (24 / 31) + (50 / 43) + \dots$$

Input

First line of input is t ($t < 5001$). Next t lines contains a positive integer n ($n < 6001$).

Output

Output is sum of the series upto n terms, upto 2 decimal places.

Example

Input:

6
1
2
3
4
5
6

Output:

0.20
1.03
1.85
2.63
3.79
5.00