

Problem N. Harmonic Number

Time limit 2000 ms

Mem limit 65536 kB

In mathematics, the n^{th} harmonic number is the sum of the reciprocals of the first n natural numbers:

$$H_n = 1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \dots + \frac{1}{n}$$

$$= \sum_{k=1}^n \frac{1}{k}$$

In this problem, you are given n , you have to find H_n .

Input

Input starts with an integer T (≤ 10000), denoting the number of test cases.

Each case starts with a line containing an integer n ($1 \leq n \leq 10^8$).

Output

For each case, print the case number and the n^{th} harmonic number. Errors less than 10^{-8} will be ignored.

Sample

Input	Output
12	Case 1: 1
1	Case 2: 1.5
2	Case 3: 1.8333333333
3	Case 4: 2.0833333333
4	Case 5: 2.2833333333
5	Case 6: 2.450
6	Case 7: 2.5928571429
7	Case 8: 2.7178571429
8	Case 9: 2.8289682540
9	Case 10: 18.8925358988
90000000	Case 11: 18.9978964039
99999999	Case 12: 18.9978964139
100000000	