1234 – Harmonic Number

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

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

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

In this problem, you are given **n**, you have to find $\mathbf{H_n}$.

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