1098 – A New Function

We all know that any integer number **n** is divisible by **1** and **n**. That is why these two numbers are not the actual divisors of any numbers. The function **SOD(n)** (sum of divisors) is defined as the summation of all the actual divisors of an integer number **n**. For example,

SOD(24) = 2+3+4+6+8+12 = 35.

The function **CSOD(n)** (cumulative **SOD**) of an integer **n**, is defined as below:

$$CSOD(n) = \sum_{i=1}^{n} SOD(i)$$

Given the value of **n**, your job is to find the value of **CSOD(n)**.

Input

Input starts with an integer **T (≤ 1000)**, denoting the number of test cases.

Each case contains an integer **n (0 ≤ n ≤ 2 * 10^9)**.

Output

For each case, print the case number and the result. You may assume that each output will fit into a **64** bit signed integer.

Sample Input	Output for Sample Input
3 2 100 200000000	Case 1: 0 Case 2: 3150 Case 3: 12898681201837053