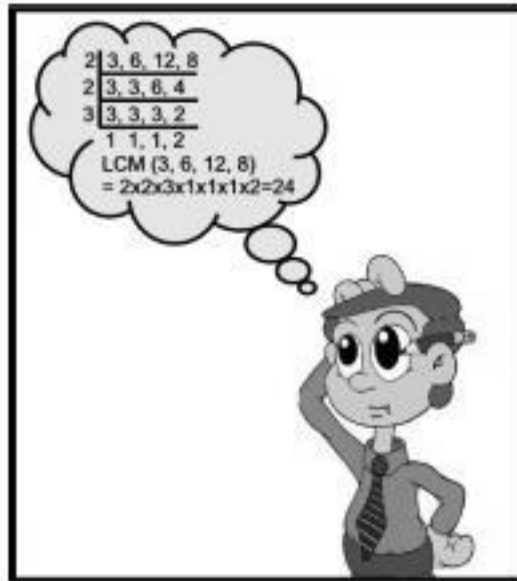# 10791   Minimum Sum LCM

LCM (Least Common Multiple) of a set of integers is defined as the minimum number, which is a multiple of all integers of that set. It is interesting to note that any positive integer can be expressed as the **LCM** of a set of positive integers. For example **12** can be expressed as the **LCM** of **1**, **12** or **12**, **12** or **3**, **4** or **4**, **6** or **1**, **2**, **3**, **4** etc.

In this problem, you will be given a positive integer N. You have to find out a set of at least two positive integers whose **LCM** is N. As infinite such sequences are possible, you have to pick the sequence whose summation of elements is minimum. We will be quite happy if you just print the summation of the elements of this set. So, for $N = 12$, you should print **4+3 = 7** as **LCM** of **4** and **3** is **12** and **7** is the minimum possible summation.

Input

The input file contains at most **100** test cases. Each test case consists of a positive integer N ($1 \le N \le 2^{31} - 1$).

Input is terminated by a case where $N = 0$. This case should not be processed. There can be at most **100** test cases.

Output

Output of each test case should consist of a line starting with 'Case #:   ' where # is the test case number. It should be followed by the summation as specified in the problem statement. Look at the output for sample input for details.

Sample Input

```
12
10
5
```

0

Sample Output

```
Case 1: 7
Case 2: 7
Case 3: 6
```