

Alex has a simple assignment in his hand: counting the number of divisors of a given positive number M . For example the number **60** has **12** divisors **1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30** and **60**. Although it is very easy task, finding the reverse is not that easy. If you are given the number of divisors D of an unknown positive number M , it is not very easy to find M and in all cases there are more than one solution. The boring and easy assignments given by his teachers do not keep intelligent Alex interested for long. So he is trying to solve this rather difficult task now. Can you help him?

Input

The input file contains several lines of input. Each line contains an integer D ($0 < D \leq 5000$). Input is terminated by a line, which contains a number '0'. This line should not be processed.

Output

For each line of input except the last one you should produce one line of output. This line should contain the serial number of output followed by a positive number M less than $(10^{15} + 1)$ whose number of divisors is exactly D . If there is no such number M less than $(10^{15} + 1)$ whose total number of divisors is D , print the word 'Impossible' without the quotes. If there is more than one possible value of M within the specified range, print the smallest one. Look at the output for sample input for details.

Sample Input

```
3
4
12
60
4911
0
```

Sample Output

```
Case 1: 4
Case 2: 6
Case 3: 60
Case 4: 5040
Case 5: Impossible
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