Number Breaking

Every number is multiplication of some prime numbers. Prime number is a number which is only divided by 1 and itself. Here you are given a number n. You have to find the prime numbers whose multiplication makes this number.

For example, 12 is multiplication of prime numbers 2 and 3. 15 is multiplication of 3 and 5.

Input

First Line will contain the number of test cases T. Then each line will contain a single integer n.

Constraints: $1 \leq T \leq 1000$, $2 \leq n \leq 1000000$.

Output

For each test case print a single line which contains test case number and the prime numbers in ascending order separated by a single space whose multiplication make this number.

Example

Input:
3
12
42
84

Output:
Case 1: 2 3
Case 2: 2 3 7
Case 3: 2 3 7