# 1035 – Intelligent Factorial Factorization

Given an integer **N**, you have to prime factorize **N!** (factorial **N**).

## Input

Input starts with an integer **T (≤ 125)**, denoting the number of test cases.

Each case contains an integer **N (2 ≤ N ≤ 100)**.

## Output

For each case, print the case number and the factorization of the factorial in the following format as given in samples.

**Case x: N = $p_1$ (power of $p_1$) * $p_2$ (power of $p_2$) * ...**

Here **x** is the case number, **$p_1$, $p_2$ ...** are primes in ascending order.

| Sample Input | Output for Sample Input |
|---|---|
| 3<br>2<br>3<br>6 | Case 1: 2 = 2 (1)<br>Case 2: 3 = 2 (1) * 3 (1)<br>Case 3: 6 = 2 (4) * 3 (2) * 5 (1) |

## Notes

The output for the 3rd case is (if we replace space with '.') is

```
Case.3:.6.=.2.(4).*.3.(2).*.5.(1)
```