1282 – Leading and Trailing

You are given two integers: **n** and **k**, your task is to find the most significant three digits, and least significant three digits of $\mathbf{n^k}$.

Input

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

Each case starts with a line containing two integers: **n ($2 \le n < 2^{31}$)** and **k ($1 \le k \le 10^7$)**.

Output

For each case, print the case number and the three leading digits (most significant) and three trailing digits (least significant). You can assume that the input is given such that $\mathbf{n^k}$ contains at least six digits.

Sample Input	Output for Sample Input
5 123456 1 123456 2 2 31 2 32 29 8751919	Case 1: 123 456 Case 2: 152 936 Case 3: 214 648 Case 4: 429 296 Case 5: 665 669