



Winter Camp Contest 2023

Problem M

Mini Factorization Challenge

Time limit: 1 second

Memory limit: 2048 megabytes

Problem Description

Factorizing huge integers has caught more and more people's interest since it is unknown whether fast algorithms to factorize huge integers exist. Despite the difficulty, Mia challenges you to factorize a huge positive integer n . As a hint, she also gives you k , the number of positive factors of n .

Soon, you realize that Mia only learns primes less than 100, so all the prime factors in n are less than 100. You also noticed that Mia intentionally miswrote exactly one digit in both n and k . Now you are given n' and k' (the miswritten n and k), and you are to find n and k so that you can successfully factorize n .

Input Format

The first line contains the number of test cases T . Each test case contains two integers n' and k' in one line.

Output Format

Print each test case's a possible value of n and k in one line. n and k should have the same number of digits as n' and k' , respectively. n and k should not contain leading zeros.

If there are multiple possible solutions, print the one with the minimum n . It is guaranteed that a solution always exists.

Technical Specification

- $1 \leq T \leq 100$
- $10^5 \leq n' \leq 10^{100} - 1$
- $10 \leq k' \leq 10^{18} - 1$
- n' and k' do not contain leading zeros.



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Sample Input 1

```
1
100000 10
```

Sample Output 1

```
102000 80
```

Sample Input 2

```
2
931072 98
223830 47
```

Sample Output 2

```
131072 18
223839 48
```