

The problem statement is very easy. Given a number n you have to determine the largest power of m , not necessarily prime, that divides $n!$.

Input

The input file consists of several test cases. The first line in the file is the number of cases to handle. The following lines are the cases each of which contains two integers m ($1 < m < 5000$) and n ($0 < n < 10000$). The integers are separated by an space. There will be no invalid cases given and there are not more than 500 test cases.

Output

For each case in the input, print the case number and result in separate lines. The result is either an integer if m divides $n!$ or a line 'Impossible to divide' (without the quotes). Check the sample input and output format.

Sample Input

```
2
2 10
2 100
```

Sample Output

```
Case 1:
8
Case 2:
97
```