

Problem I

Infinite Fraction Sequence

In this problem, you'll have to answer T queries. For each query, you are given n and k . Consider an infinite sequence of fractions p/q where $1 \leq p, 1 \leq q \leq n$. These fractions are arranged in ascending order, primarily sorted by the value p/q and, in case of a tie, by the numerator p . Your task is to find the k -th smallest fraction in this sequence.

Input

The first line contains an integer T ($1 \leq T \leq 5000$), the number of queries. Each of the following T lines contains two integers n and k ($1 \leq n \leq 10^9, 1 \leq k \leq 10^{18}$).

Output

For each query, output a single line containing two integers p and q , separated by a space. These integers represent the k -th smallest fraction p/q .

Sample explanation

When $n = 3$, the first three elements of the infinite sequence are: $1/3$, $1/2$ and $2/3$.

Sample Input 1	Sample Output 1
1 3 3	2 3