PROBLEM I. K-th DIGIT

Time limit: 1 second

Given a positive integer w, create a sequence of digits by the following rules:

- Firstly, write down all natural numbers in the interval $[1,10^{15}]$ that divisible by w in increasing order.
- Next, write down all natural numbers in the interval $[1,10^{15}]$ that divide w remains 1 in increasing order.
- Next, write down all natural numbers in the interval $[1,10^{15}]$ that divide w remains 2 in increasing order.
- So on and finally write down all natural numbers in the interval $[1,10^{15}]$ that divide w remains $w-1$ in increasing order.

Given an integer k, your task is to find the k-th digit in the above sequence.

Input

The first input line contains a positive integer T ($T \leq 1000$), the number of test cases.

Then T lines followed, each contains two positive integers w and k ($w, k \leq 10$^15).

Output

Output T lines, each line contains answer for the corresponding test case.

Sample

INPUT	OUTPUT
2	9
1 9	0
10 2	