

## Problem D. K-th Not Divisible by n

**Time limit** 1000 ms

**Mem limit** 262144 kB

You are given two positive integers  $n$  and  $k$ . Print the  $k$ -th positive integer that is not divisible by  $n$ .

For example, if  $n = 3$ , and  $k = 7$ , then all numbers that are not divisible by 3 are: 1, 2, 4, 5, 7, 8, 10, 11, 13 . . . . The 7-th number among them is 10.

### Input

The first line contains an integer  $t$  ( $1 \leq t \leq 1000$ ) — the number of test cases in the input. Next,  $t$  test cases are given, one per line.

Each test case is two positive integers  $n$  ( $2 \leq n \leq 10^9$ ) and  $k$  ( $1 \leq k \leq 10^9$ ).

### Output

For each test case print the  $k$ -th positive integer that is not divisible by  $n$ .

### Examples

Input	Output
6	10
3 7	15
4 12	1999999999
2 1000000000	113
7 97	1000000001
1000000000 1000000000	1
2 1	