Cannibal Island

Lea, bold and daring as she is, ignores travel warnings. Hence she is held captive on a remote island by a group of cannibals.

Even considering that the cannibals are genuine cannibals, the human-eating savages she is confronted with are of a very malicious kind, for they have devised the following ritual:

The cannibals' leader whispers a number into Lea's ear. Then he leads her to a circle of frightened pigs. The leader points to some position in the circle where a pig is squeaking in agony. "Remember the number k I told you, delicious Lea?", he utters in a lustful voice, "Starting from this position, I pick every kth pig in clockwise manner to be slaughtered until only one pig remains." He smiles eerily, then pauses for dramatic effect, as if to indulge in his cannibalistic desires, before he continues: "You must take the position of one of those pigs. If you are the single individual remaining, we let you free. Otherwise we are going to devour you just like the other pigs."

Can you help Lea find the right position in the circle, so that the mean cannibals let her free?

Input

The first line of the input contains an integer t. t test cases follow.

Each test case consists of a single line n k of two space-separated integers n and k, where n is the number of pigs in the circle and k is the number whispered into Lea's ear.

Output

For each test case, print a line containing "Case #i: p" where i is its number, starting at 1 and p is the position of the pig that Lea should replace. The number 1 denotes the starting position the leader points to and the position numbers are assumed to be increased in clockwise order. Each line of the output should end with a line break.

Constraints

- $1 \leq t \leq 20$
- $1 \leq n, k \leq 10000$

Sample Input 1

```
2
5 2
8 3
```

Sample Output 1

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Case #1: 3
Case #2: 7
```

Sample Input 2

```
5
15 3
20 5
5 2
12 4
17 6
```

Sample Output 2

```
Case #1: 5
Case #2: 7
Case #3: 3
Case #4: 1
Case #5: 2
```