Candy Distribution

Kids like candies, so much that they start beating each other if the candies are not fairly distributed. So on your next party, you better start thinking before you buy the candies. If there are K kids, we of course need $K \cdot X$ candies for a fair distribution, where X is a positive natural number. But we learned that always at least one kid loses one candy, so better be prepared with exactly one spare candy, resulting in $(K \cdot X) + 1$ candies. Usually, the candies are packed into bags with a fixed number of candies C. We will buy some of these bags so that the above constraints are fulfilled.

Input

The first line of the input contains an integer t. t test cases follow, each of them separated by a line break.

Each test case contains one line with two integers K and C, the number of kids K and the number of candies in one bag C.

Output

For each test case, print a line containing "Case #i: x" where i is its number, starting at 1, and x is either the number of candy bags you want to buy, or "`impossible`" if there is no such number of candy bags to fulfill the constraints. If there is more than one solution, any will do.

Constraints

- $1 \leq t \leq 100$
- $1 \leq K \leq 10^9$
- $1 \leq C \leq 10^9$

Sample Input 1

```
5
10 5
10 7
1337 23
123454321 42
999999937 142857133
```

Sample Output 1

```
Case #1: impossible
Case #2: 3
Case #3: 872
Case #4: 14696943
Case #5: 166666655
```