Break In

In Lea's hometown, there is a building of a branch of the Innovative Consumer Products Company (ICPC). The ICPC develops many interesting products, but is very secretive about them until they are released. Lea would like to know what their next product is, so one night, she approaches the building and examines it. The building is a large black structure without any windows and only a single door. Next to the door, there are two numeric keypads, labelled with **X** and **Y**, which are connected to a digital display. Instinctively, Lea assumes that this is the key to opening the door. She tries entering several random numbers on each keypad, but the door does not open. However, she makes some interesting observations.

Firstly, after entering numbers on the keypads **X** and **Y**, the product of the two numbers is displayed on the display above. Secondly, as the display has a fixed number of digits, if the product of the numbers is too large, the remaining digits at the front are cut off. If the product is small, the remaining digits show a `0`, i.e. the number is padded with leading zeros. For example, if the display has 3 digits, and Lea enters 3 and 5, then `015` is displayed. If Lea enters 59 and 37, then `183` is displayed.

Being unsuccessful in opening the door, Lea decides to come back the following nights for further observations of the building, while hiding in nearby bushes. At certain times in the night, she notices employees of the ICPC, always in pairs, enter the building. They do this by each one of them entering a number on each keypad, respectively.

Lea cannot see the numbers entered on the keypads, however she can view the display. The number displayed there is always a 1, with leading zeros, when the door opens (e.g. `00001`). Lea is sure that the correct numbers for opening the door have to yield this result. Further, by listening to the beeps made when the numbers are entered, she knows that the number of digits entered on either keypad is at least one and never exceeds the number of digits displayed. Finally, after the persons left, through careful analysis of fingerprints and dust build up, she concluded that the last digit entered on the keypad **Y** is 1, 3, 7 or 9. The person entering numbers on keypad **X** always wears gloves, so she could not obtain any information about the number entered there.

On one lucky night, one of the two persons was not careful enough, and Lea managed to see which number was entered on keypad **Y**. Can you tell her which corresponding number needs to be entered on keypad **X** so she can open the door?

Input

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

Each test case consists of a single line consisting of two integers n, the number of digits on the display, and y, the number entered on the keypad **Y**.

Output

For each test case, output one line containing "Case #i: x" where i is its number, starting at 1, and x is a number with $1 \leq x \leq 10^n - 1$ such that the last n digits of the product $x \cdot y$, possibly padded with leading 0s, are a series of $n - 1$ 0s followed by a single 1. You may assume that such an x always exists. If more than one such x exists, you may output any one of them.

Constraints

- $1 \leq t \leq 1000$
- $1 \leq n \leq 18$
- $1 \leq y \leq 10^n - 1$
- The last digit of y is 1, 3, 7 or 9.

Sample Input 1

```
11
1 1
1 7
1 9
2 17
2 23
2 83
2 11
3 1
3 17
3 713
3 373
```

Sample Output 1

```
Case #1: 1
Case #2: 3
Case #3: 9
Case #4: 53
Case #5: 87
Case #6: 47
Case #7: 91
Case #8: 1
Case #9: 353
Case #10: 777
Case #11: 437
```

Sample Input 2

```
12
3 969
3 589
3 923
4 333
4 7289
4 61
4 7541
4 9231
4 613
5 60543
5 11327
5 21061
```

Sample Output 2

```
Case #1: 129
Case #2: 309
Case #3: 987
Case #4: 6997
Case #5: 9609
Case #6: 7541
Case #7: 61
Case #8: 6671
Case #9: 5677
Case #10: 13407
Case #11: 23263
Case #12: 46541
```