You are given a rectangular board. You are asked to draw M horizontal lines and N vertical lines in that board, so that the whole board will be divided into $(M+1) \times (N+1)$ cells. So there will be $M+1$ rows each of which will exactly contain $N+1$ cells or columns. The y-th cell of x-th row can be called as $cell(x, y)$. The distance between two different cells is the summation of row difference and column difference of those two cells. So the distance between $cell(x_1, y_1)$ and $cell(x_2, y_2)$ is $|x_1 - x_2| + |y_1 - y_2|$. For example, the distance between $cell(2, 3)$ and $cell(3, 2)$ is $|2-3| + |3-2| = 1 + 1 = 2$.

After that you have to color every cells of the board. For that you are given K different colors. To make the board more beautiful you have to make sure that no two adjacent cells contain the same color, in other word no two cells having the same color can have the distance 1 in between them. To make the board even more beautiful you have to make sure no two cells having the same color can have the odd distance between them. So if you color $cell(3, 5)$ with red, you cannot color $cell(5, 8)$ with red, as the distance between them is 5, which is odd. Note that you can keep some color unused, but you can't keep some cell uncolored.

Input

Input will start with an integer T ($T \leq 50000$) which indicates the number of test cases. Each of the next T lines will contain three space separated integers M ($0 \leq M \leq 19$), N ($0 \leq N \leq 19$) and K ($1 \leq K \leq 50$).

Output

For each test case, output a single line in the form '`Case #:` P', where # will be replaced by the case number and P will be replaced by the number of valid ways you can draw the given board. The result can be very large you should output the result *modulo* 1000000007.

Sample Input

```
4
0 0 1
0 0 2
5 5 2
5 5 1
```

Sample Output

```
Case 1: 1
Case 2: 2
Case 3: 2
Case 4: 0
```