1325 – Distributing Chocolates

I have bought **n** chocolates for my young cousins. Every chocolate is different. So, in the contest I added the problem that how many ways I can distribute the chocolates to my **K** cousins. I can give more chocolates to some cousins, and may give no chocolate to some. For example, I have three cousins and I bought 2 chocolates **a** and **b**. Then I can distribute them in the following 9 ways:

No.	Cousin 1	Cousin 2	Cousin 3
1	a, b		
2		a, b	
3			a, b
4	a	b	
5	a		b
6		a	b
7	b	a	
8	b		a
9		b	a

Now as the result can be large, I asked for the result modulo **100 000 007** (a prime). But after that I found that this problem is easier than I thought. So, I changed the problem a little bit. I will give you the number of my cousins **K** and the result modulo **100 000 007**. Your task is to find the number of chocolates I have bought. If there are several solutions, you have to find the minimum one.

Input

Input starts with an integer **T ($\leq$ 1000)**, denoting the number of test cases.

Each case starts with a line containing two integers **K ($2 \leq K \leq 10^7$)** and **result ($0 \leq$ result $<$ 100000007)**. You can assume that the input data is valid, that means a solution exists.

Output

For each case, print the case number and the minimum possible number of chocolates I have bought.

Sample Input	Output for Sample Input
2 3 9 2 100	Case 1: 2 Case 2: 23502611