Given a positive integer, N, a *permutation* of order N is a one-to-one (and thus *onto*) function from the set of integers from 1 to N to itself. If p is such a function, we represent the function by a list of its values:

$$[p(1)p(2)\dots p(N)]$$

For example,

[5 6 2 4 7 1 3] represents the function from $\{1\dots 7\}$ to itself which takes 1 to 5, 2 to 6, …, 7 to 3.

For any permutation p, a *descent* of p is an integer k for which $p(k) > p(k+1)$. For example, the permutation [5 6 2 4 7 1 3] has a descent at $2(6 > 2)$ and $5(7 > 1)$.

For permutation p, $des(p)$ is the number of descents in p. For example, $des([5624713]) = 2$. The identity permutation is the only permutation with $des(p) = 0$. The *reversing* permutation with $p(k) = N + 1 - k$ is the only permutation with $des(p) = N - 1$.

The *permutation descent count* (PDC) for given order N and value v is the number of permutations p of order N with $des(p) = v$. For example:

$PDC(3,0) = 1\{[123]\}$
$PDC(3,1) = 4\{[132],[213],[231],312]\}$
$PDC(3,2) = 1\{[321]\}$

Write a program to compute the PDC for inputs N and v. To avoid having to deal with very large numbers, your answer (and your intermediate calculations) will be computed *modulo* 1001113.

Input

The first line of input contains a single integer P, $(1 \le P \le 1000)$, which is the number of data sets that follow. Each data set should be processed identically and independently.

Each data set consists of a single line of input. It contains the data set number, K, followed by the integer order, N $(2 \le N \le 100)$, followed by an integer value, v $(0 \le v \le N - 1)$.

Output

For each data set there is a single line of output. The single output line consists of the data set number, K, followed by a single space followed by the PDC of N and v *modulo* 1001113 as a decimal integer.

Sample Input

```
4
1 3 1
2 5 2
3 8 3
4 99 50
```

Sample Output

```
1 4
2 66
3 15619
4 325091
```