D. Meet the Squad

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

The CPL-2023's fifth game, one of the most awaited games, ended with Kennai Cuper Kings turning out to be the winners. After the match, a certain number of the audience (say n) wanted to see the squad. When they approached their (players') room, a guard stopped the crowd and arranged them in line.

He then gave each individual a positive integer number. People wearing the identical color shirt received the same number from him (one for yellow shirt, two for green shirt, and so on). He is aware that there are atmost p distinct colored shirts in total among the crowd. Now he chose to pick exactly one **continuous** group of people from the line, with the requirement that at least one of them wear a yellow shirt and that the group has **exactly** $(p-2)$ distinct shirt colors. He just wanted only those folks to be able to view the team. Determine the largest audience that can meet the squad.

NOTE: Each distinct color shirt has a unique number given by the guard.

Input

The first line contains a single integer $t(1 \leq t \leq 10^3)$ — the number of test cases.

The first line of each test case contains two integers $n(3 \leq n \leq 10^5)$ - the number of audience who wants to see the squad and $p(3 \leq p \leq 10^5)$ - maximum possible number of distinct colors of shirts worn by them.

The second line contains n integers - the number given by the guard to each of n individuals in the line based on the shirt color they wear.

It is guaranteed that the sum of n over all test cases does not exceed 10^6

Output

For each test case, print one integer - The maximum number of people who get to see the squad.

Examples

input Copy

```
3
5 3
2 2 3 4 3
6 4
2 3 2 1 4 2
8 5
4 4 3 3 3 3 3 2
```

output Copy

```
0
2
0
```

input Copy

```
1
12 5
3 3 1 1 2 3 2 3 1 3 5 1
```

output Copy

```
10
```

Note

For the first sample input:

1. In the first case, yellow shirt (number one) is absent. Hence answer will be 0.
2. In the second case, the audience set $\{2, 3, 2\}$ can't be the maximum with 2 distinct colors because there should be at least one yellow shirt (i.e., number 1 in the set). Therefore the set $\{2, 1\}$ or $\{1, 4\}$ will be the maximum with 2 distinct colors as well as having at least one yellow shirt. Hence the answer will be 2.