Problem A – Minimização de Segmentos

You are given a sequence of $\boldsymbol{N}$ integers, where each integer lies in the range $[1, \boldsymbol{X}]$. A *segment* of the sequence is defined as a maximal contiguous subsequence whose elements are all equal. You may change the value of exactly $\boldsymbol{K}$ elements of the sequence, replacing each of them with any integer between 1 and $\boldsymbol{X}$. Determine the minimum number of segments you can obtain if the $\boldsymbol{K}$ changes are made optimally.

Example

Suppose a test case with $\boldsymbol{N} = 5$, $\boldsymbol{K} = 1$, $\boldsymbol{X} = 3$ and the sequence

1 2 2 3 3.

Without any changes, there are three segments: $[1]$, $[2, 2]$, $[3, 3]$. We can use one change to turn the first element from 1 into 2, obtaining

2 2 2 3 3,

which has only two segments: $[2, 2, 2]$ and $[3, 3]$. Therefore, the answer for this case is 2.

Constraints

The following limits are guaranteed for every test case:

$1 \leq \boldsymbol{T} \leq 10$	Number of test cases
$1 \leq \boldsymbol{N} \leq 10^3$	Length of the sequence in each test case
$1 \leq \boldsymbol{X} \leq 10^3$	Maximum value any element of the sequence can take
$0 \leq \boldsymbol{K} \leq \boldsymbol{N}$	Number of allowed changes in each test case

Subtask overview

The test cases are organized into 5 groups with additional restrictions:

Group	Points	Additional Constraints
1	10	$\boldsymbol{X}, \boldsymbol{N} \leq 8$
2	20	$\boldsymbol{X}, \boldsymbol{N} \leq 50$
3	20	$\boldsymbol{X}, \boldsymbol{N} \leq 200$
4	20	$\boldsymbol{X} = 2$
5	30	No additional restrictions

Input Format

The first line contains an integer $\boldsymbol{T}$, the number of test cases. Each test case consists of two lines:

- The first line of the test case contains three integers $\boldsymbol{N}$, $\boldsymbol{K}$ and $\boldsymbol{X}$.
- The second line contains $\boldsymbol{N}$ integers $(a_1, a_2, \ldots, a_{\boldsymbol{N}})$, representing the initial sequence. Each a_i satisfies $1 \leq a_i \leq \boldsymbol{X}$.

Output Format

For each test case, output a single line with one positive integer: the minimum number of segments that can be obtained after applying the $\boldsymbol{K}$ changes optimally.

Example 1 Input

```
2
5 1 3
1 2 2 3 3
6 2 3
1 1 2 2 1 1
```

Example 1 Output

```
2
1
```

Example 1 Description

In the first test case, we change the first element from 1 to 2, obtaining the sequence 2 2 2 3 3, which has two segments. In the second test case, we change both elements with value 2 to 1, obtaining 1 1 1 1 1 1, which forms only one segment.

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