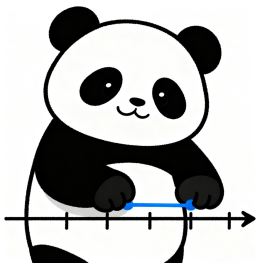
# K K-Coverage

Time limit: 1s



Panda has a one-dimensional axis with $n$ segments placed on its non-negative side. The left endpoint of the $i$-th segment is $l_i$. Every segment has the same length, $L$. This means the $i$-th segment covers the interval $[l_i, l_i + L - 1]$ (inclusive).

Now, Panda wants you to find the maximum number of integer points on the non-negative side of the axis that can be covered **exactly** $k$ times after moving **at most one** segment. Specifically, you are allowed to select at most one segment and change its left endpoint to **any non-negative integer** (with no upper bound). The segment's length, $L$, remains the same.

## Input

The first line contains an integer $T$ ($1 \le T \le 2 \times 10^5$), denoting the number of test cases.

For each test case, the first line contains three positive integers $n, L, k$ ($1 \le n \le 2 \times 10^5$, $1 \le L \le n$, $1 \le k \le n$). $n$ is the total number of segments, $L$ is the fixed length of every segment, and $k$ is the required coverage count.

The second line contains $n$ non-negative integers. The $i$-th integer is $l_i$ ($0 \le l_i \le 2 \times n$) representing the left endpoint of the $i$-th segment.

It is guaranteed that the sum of $n$ over all test cases does not exceed $2 \times 10^5$.

## Output

For each test case, output one line with a single integer, denoting the maximum number of integer points that can be covered exactly $k$ times after moving at most one segment.

| Sample Input 1 | Sample Output 1 |
|---|---|
| 3<br>3 2 1<br>2 6 2<br>3 3 2<br>6 2 0<br>5 1 3<br>5 6 7 8 9 | 6<br>3<br>0 |

## Note

For the first test case in the example, initially, the three segments are $[2, 3]$, $[6, 7]$, and $[2, 3]$. You can change the third segment's left endpoint to 114514. After this move, the segments are $[2, 3]$, $[6, 7]$, and $[114514, 114515]$. This results in 6 integer points covered exactly once, which is the maximum achievable.

For the second test case, you can move the first segment's left endpoint to 3 to maximize the number of integer points that are covered exactly twice.

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