

7954 Cameras

Your street has n houses, conveniently numbered from 1 to n . Out of these n houses, k of them have security cameras installed. Mindful of gaps in coverage, the Neighborhood Watch would like to ensure that every set of r consecutive houses has at least two different houses with cameras. What is the minimum number of additional cameras necessary to achieve this?



Input

The input file contains several test cases, each of them as described below.

The first line contains three integers, n ($2 \leq n \leq 100,000$), k ($0 \leq k \leq n$), and r ($2 \leq r \leq n$).

The next k lines of input contain the distinct locations of the existing cameras.

Output

For each test case, print, on a single line, a single integer indicating the minimum number of cameras that need to be added.

Sample Input

```
15 5 4
2
5
7
10
13
```

Sample Output

```
3
```