E - Subarray Sum Divisibility

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Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 475 points

Problem Statement

You are given a length-N integer sequence $A = (A_1, A_2, \ldots, A_N)$.

Your goal is to perform the following operation repeatedly so that for every length-L contiguous subarray of A, the sum is a multiple of M.

- Choose an integer i such that $1 \leq i \leq N$, and increase the value of A_i by 1.

Find the minimum possible number of operations before achieving the goal.

Constraints

- $1 \leq N, M \leq 500$
- $1 \leq L \leq N$
- $0 \leq A_i < M$
- All input values are integers.

Input

The input is given from Standard Input in the following format:

N M L
A_1 A_2 $\ldots$ A_N

Output

Output the answer.

Sample Input 1 Copy

```
4 5 3
4 2 1 3
```

Sample Output 1 Copy

```
4
```

By performing the operation once choosing $i = 2$, twice choosing $i = 3$, and once choosing $i = 4$, you get $A = (4, 3, 3, 4)$ with a total of four operations, where every length-3 contiguous subarray sums to a multiple of 5.

Sample Input 2 Copy

```
7 10 4
7 0 9 1 6 4 2
```

Sample Output 2 Copy

```
10
```

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