

Algorithm Class Mini-Contest 2

Problem: FUEL

Time Limit: 1.0 seconds

Memory Limit: 64 MB

Problem Description You are driving along a highway of length L kilometers. There are N different gas stations along the highway, each gas station i being F_i kilometers from the beginning of the highway. Each liter of fuel can last exactly one kilometer, and your fuel tank has a capacity of T liters. You start off with a full fuel tank at the start of the highway, and you want to stop at the minimum number of gas stations possible to travel the entire length of the highway.

Input Format The first line of input will contain three integers, N, L, T . The second line of input will contain N integers, representing the array F .

Output Format The output should contain exactly one line with one integer, the minimum number of gas stations they can stop at. If this is not possible, output -1.

Limits These are the bounds on the input.

| Subtask | Score | Additional Bounds |
|------------|-------|---|
| 1 | 17 | $1 \leq N, L \leq 1,000$ |
| 2 | 31 | $1 \leq N, L \leq 500,000$ |
| 3 | 52 | $1 \leq N \leq 500,000, 1 \leq L \leq 10^9$ |
| <i>All</i> | - | $1 \leq T \leq L, 1 \leq F_i < L$ |

Sample Input

```
5 9 3
1 3 4 5 6
```

Sample Output

```
2
```