

Problem F. Jump

Time limit 3000 ms
Memory limit 1024MB

Problem Description

Given one-dimensional coordinates $x_1 < x_2 < \dots < x_N$, there is a sequence of length T : L_0, L_1, \dots, L_{T-1} . Bob wants to travel from one point to another. On day D , the maximum distance that can be traveled is $L_{D \bmod T}$. It means that on day D , if Bob is on x_i , then he can choose x_j such that $|x_i - x_j| \leq L_{D \bmod T}$ and go to x_j .

There are Q queries (a, b) . For each query, starting from x_a , determine the minimum number of days that Bob needs to reach x_b .

It's guaranteed that x_a can reach x_b .

Input format

The first line contains three integers N, Q, T . ($1 \leq N, Q \leq 10^5, 1 \leq T \leq 50$)

The second line contains N integers: x_1, x_2, \dots, x_N . ($1 < x_1 < \dots < x_N \leq 10^{15}$)

The third line contains T integers: L_0, L_1, \dots, L_{T-1} . ($0 \leq L_d \leq 10^{15}$)

Each of the next Q lines contains two integers a, b representing a query. ($1 \leq a < b \leq N$)

Output format

Output Q lines, each containing a single integer — the answer for the corresponding query.

Subtask score

Subtask	Score	Additional Constraints
1	30	$T = 1$
2	20	$N, Q \leq 1000$
3	50	No additional constraints

Sample

Sample Input 1

```
5 1 2
2 4 7 9 11
3 2
1 5
```

Sample Output 1

```
5
```