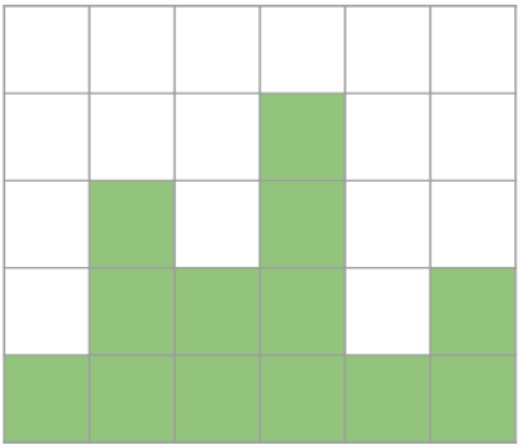
Task 1: `Pilot`

Rar the Cat has finally fulfilled his childhood dream of becoming a pilot, and wants to take his friend, Dinosaur, on a few scenic flights. Rar lives on a linear world, which can be described as a series of N integers, with the ith integer H_i indicating the height of the ith mountain from the leftmost edge of his world.

For example, the world described with $N = 6$, $H = \{1, 3, 2, 4, 1, 2\}$ will look like this:



Rar has a total of Q planes that he wishes to show off, with the ith plane having a maximum cruising altitude of Y_i metres. Each flight starts from the sth mountain and ends on the eth mountain. We may assume that $s \leq e$, i.e. **Rar will always fly toward the right**. As each of his planes have a maximum cruising altitude, he is unable to fly across, take off from, or land on a mountain where its height is greater than its cruising altitude, i.e. Rar is only able to fly over the ith mountain using the jth plane if $H_i \leq Y_j$.

For the ith plane, please help Rar determine the total number of different flights he can possibly take, i.e. the total number of ways Rar can choose s and e such that $s \leq e$, and there are no mountains between s and e inclusive of height greater than Y_i.

Input

Your program must read from standard input.

The first line of input will contain two integers, N and Q.

The second line of input will contain N integers, $H_1, \ldots, H_N$.

The third line of input will contain Q integers, $Y_1, \ldots, Y_Q$.

Output

Your program must print to standard output.

The output should contain Q lines with one integer each, with the number on the ith line indicating the total number of different flights Rar can take with his ith plane.

Subtasks

The maximum execution time on each instance is 1.0s. For all testcases, the input will satisfy the following bounds:

- $1 \leq N, Q, H_i, Y_i \leq 10^6$

Your program will be tested on input instances that satisfy the following restrictions:

Subtask	Marks	Additional Constraints
1	3	$N = 2, Q = 1$
2	10	$1 \leq N, Q \leq 30$
3	12	$1 \leq N, Q \leq 200$
4	15	$1 \leq N, Q \leq 10^3$
5	5	$1 \leq N \leq 10^5, Q = 1, Y_i = 10^6$
6	9	$1 \leq N, Q \leq 10^5, H_i = i$
7	14	$1 \leq N, Q \leq 10^5$, H is strictly increasing.
8	10	$1 \leq N \leq 10^5, Q = 1$
9	11	$1 \leq N, Q \leq 10^5$
10	11	-

Sample Testcase 1

This testcase is valid for subtasks 2, 3, 4, 9 and 10.

Input	Output
6 3 1 3 2 4 1 2 2 3 4	5 9 21

Sample Testcase 1 Explanation

For the first plane, 5 flights are possible: (1, 1), (3, 3), (5, 5), (5, 6), (6, 6). For the second plane, 9 flights are possible: (1, 1), (1, 2), (1, 3), (2, 2), (2, 3), (3, 3), (5, 5), (5, 6), (6, 6). For the last plane, all 21 flights are possible.

Sample Testcase 2

This testcase is valid for subtasks 2, 3, 4, 9 and 10.

Input	Output
6 3 2 2 5 2 2 2 1 2 10	0 9 21

Sample Testcase 3

This testcase is valid for all subtasks.

Input	Output
2 1 1 2 1000000	3