

Towards The Skyline

Input file: **standard input**
Output file: **standard output**
Time limit: 5 seconds
Memory limit: 1024 megabytes



There are n cities in Shinkai's story. The n cities are arranged in a line.

Akie wants to reach the distant *skyline* beyond the n -th city. Fortunately, she doesn't need to run the entire way. Every city has a portal, and the initial portal strength of city i is a_i .

When Akie is at city p , she can use the portal there. If $p + a_p > n$, she reaches her destination; otherwise, she is teleported to city $p + a_p$. At the same time, if the portal strength of the original city is greater than 1, it decreases by 1 due to energy loss.

She has m travel plans in sequence. For the i -th plan, she starts from city b_i . She wants to know, for each plan, how many teleportations are needed.

Input

The input consists of three lines.

The first line contains two integers n and m ($2 \leq n \leq 1.5 \times 10^5$, $1 \leq m \leq 1.5 \times 10^5$).

The second line contains n integers a_i ($1 \leq a_i \leq n$), representing the initial portal strengths.

The third line contains m integers b_i ($1 \leq b_i \leq n$).

Output

Output m lines, each containing an integer representing the number of teleportations required for the corresponding travel plan.

Example

standard input	standard output
7 4	3
3 4 2 1 4 2 2	2
1 3 2 1	2
	5

Note

First trip: Akie passes through cities (1, 4, 5). After that, a becomes [2, 4, 2, 1, 3, 2, 2].

Second trip: She passes through (3, 5). After that, a becomes [2, 4, 1, 1, 2, 2, 2].

Third trip: She passes through (2, 6). After that, a becomes [2, 3, 1, 1, 2, 1, 2].

Fourth trip: She passes through (1, 3, 4, 5, 7). After that, a becomes [1, 3, 1, 1, 1, 1, 1].