Avatar queries

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Avatar aang is in trouble. He's facing a threat bigger than anything he has faced before and he needs the help of former avatars. However talking with his pasts lives, is exhausting so he wants your help to find the correct avatars to contact.

You are given an array $a_1, a_2, \ldots, a_n$ where a_i is how helpful the i-th avatar is, and a_n avatar is the latest avatar before Aang. Consider that an avatar could be unhelpful rather than helpful, so he'll have a negative value.

You'll have to answer q queries, consisting of a number x indicating, Aang doesn't want to go further back than the x-th avatar. So starting from avatar $x+1$, find the maximum possible sum of helpfuness a contiguous subarray of avatars can give. Tradition indicates that Aang must recieve help from at least 1 avatar.

Input

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

The second line contains n integers $a_1, a_2, \ldots, a_n$ ($-10^9 \leq a_i \leq 10^9$).

Each of the next q lines contains one integer x ($0 \leq x < n$).

Output

For each query, print the maximum help Aang can get, even if it is negative.

Example

standard input	standard output
5 4 -2 3 -1 4 -5 0 1 3 4	6 6 4 -5

Note

For $x = 0$, all avatars are available. For $x = n - 1$, the only available avatar is a_n.