

Best Runner

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

There are n running tracks in the stadium with lengths a_1, a_2, \dots, a_n . There are also m runners, with the i -th runner starting at the beginning of track b_i .

All runners will train for T seconds. The training of a runner proceeds as follows:

Let the runner currently be at the beginning of track i . They will run to the end of the current track in a_i seconds. After that, they can either instantly return to the beginning of the current track, or move to the beginning of track $(i - 1)$ (if $i > 1$), or to the beginning of track $(i + 1)$ (if $i < n$). After this, they continue running from the track they moved to. Once the training duration reaches T seconds, they finish their training.

We define the best runner as the one who runs the most number of **full** tracks during the training time (there may be several such runners). Determine how many tracks the best runner will run.

Input

The first line contains three integers n, m , and T ($1 \leq m \leq n \leq 300\,000, 1 \leq T \leq 10^9$) — the number of tracks, the number of runners, and the duration of the training.

The second line contains n integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 10^9$) — the lengths of the tracks.

The third line contains m integers b_1, b_2, \dots, b_m ($1 \leq b_1 < b_2 < \dots < b_m \leq n$) — the track numbers from which the runners start.

Output

Output a single integer — the maximum number of full tracks that one of the runners can run during the training time.

Examples

standard input	standard output
5 3 10 4 5 2 7 1 1 2 4	4
4 2 11 4 5 7 10 2 3	2

Note

In the first example, the runner starting on track 4 can run the most tracks: they should run track 4, then move to track 5 and run it 3 times.

In the second example, the runner starting on track 2 can run the second track 2 times.

Scoring

The tests for this problem consist of six groups. Points for each group are given only if all tests of the group and all tests of the required groups are passed.

Group	Points	Additional constraints			Required Groups	Comment
		n	T	a_i		
0	0	—	—	—	—	Examples.
1	23	$n \leq 1000$	—	—	0	
2	10	—	—	—	—	$a_i \leq a_{i+1}$ for all $1 \leq i < n$
3	16	—	$T \leq 20$	—	0	
4	19	—	—	$a_i \leq 20$	0	
5	11	—	—	—	—	$m = n$
6	21	—	—	—	0 – 5	