

Problem E. Longest Common Subsequence

Input file: *standard input*
Output file: *standard output*
Time limit: 2 seconds
Memory limit: 256 mebibytes

Chiaki has two sequences a_1, a_2, \dots, a_n and b_1, b_2, \dots, b_m . She would like to find their longest common subsequence c_1, c_2, \dots, c_k such that $c_1 \leq c_2 \leq \dots \leq c_k$.

Input

There are multiple test cases. The first line of input contains an integer T , indicating the number of test cases. For each test case:

The first line contains two integers n and m ($1 \leq n, m \leq 10^6$): the lengths of two sequences.

The second line contains n integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 3$).

The third line contains m integers b_1, b_2, \dots, b_m ($1 \leq b_i \leq 3$).

It is guaranteed that the sum of $\max\{n, m\}$ in all test cases does not exceed 10^6 .

Output

For each test case, output a single integer k : the length of the longest common subsequence c_1, c_2, \dots, c_k such that $c_1 \leq c_2 \leq \dots \leq c_k$.

Example

standard input	standard output
3	3
3 3	2
1 2 3	2
1 2 3	
3 3	
1 1 1	
1 1 2	
3 3	
1 3 2	
1 2 3	