

Problem L. Permutation Compression

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 1024 megabytes

Grammy has a permutation of length n . She wants to delete some useless elements in the permutation, so she decided to use some magic tool to delete them. There are k magic tools, the i -th of them can delete the maximum element of an interval of length exactly l_i . Each magic tool can be used at most once.

Before using the tool, Grammy shows you her blueprint of the array after deletion. The new array consists of exactly m distinct elements from 1 to n . Please help Grammy to determine whether it is possible to delete the elements by using the magic tool.

Input

There are multiple test cases. The first line contains an integer T ($1 \leq T \leq 10^5$), denoting the number of test cases.

For each testcase:

The first line contains 3 integers n, m, k ($1 \leq m \leq n \leq 2 \times 10^5, 1 \leq k \leq 2 \times 10^5$), denoting the length of the permutation, the length of the compressed array, and the parameter of the magic tool.

The second line contains n distinct integers a_i ($1 \leq a_i \leq n$), denoting the initial permutation. It is guaranteed that the elements are distinct.

The third line contains m distinct integers b_i ($1 \leq b_i \leq n$), denoting the array after compression. It is guaranteed that the elements are distinct.

The fourth line contains k integers l_i ($1 \leq l_i \leq n$), denoting the magic tools.

It is guaranteed that $\sum n \leq 2 \times 10^5$ and $\sum k \leq 2 \times 10^5$.

Output

For each testcase, output “YES” or “NO” in a separate line, denoting the answer to the problem.

Example

standard input	standard output
3	YES
5 2 3	YES
5 1 3 2 4	NO
5 2	
1 2 4	
5 5 5	
1 2 3 4 5	
1 2 3 4 5	
1 2 3 4 5	
3 2 2	
3 1 2	
3 2	
2 3	