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 ($1 \le T \le 10^5$), denoting the number of test cases.

For each testcase:

The first line contains 3 integers n, m, k ($1 \le m \le n \le 2 \times 10^5, 1 \le k \le 2 \times 10^5$), 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 ($1 \le a_i \le n$), denoting the initial permutation. It is guaranteed that the elements are distinct.

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

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

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

Output

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

Example

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