

Jon Snow and the white walker

Jon Snow is standing on The Wall and as we know Jon Snow knows nothing. There is a forest near The Wall and Jon Snow has been chasing a white walker. Both of them are on a different trail and are moving further towards the end of the forest.

The forest trail is in the form of a tree ending at the root (hence Jon Snow and white walker are at two different nodes of a tree).

Jon Snow needs your help to determine at which point he can intercept the white walker ASAP.

PS: there will always be a point of intersection.

Input Format

Line 1 contains the number of nodes in the forest

Line 2 contains the preorder traversal of the forest

Line 3 contains the inorder traversal of the forest

Line 3 contains the number of input test cases 't'

Subsequent 't' lines contain 2 space separated integers denoting the position of Jon Snow and White Walker

Output Format

't' lines containing a single integer having the point of intersection

Sample Input

```
9
4 1 7 6 3 5 9 8 2
7 6 1 4 5 9 3 2 8
2
9 2
9 6
```

Sample Output

```
3
4
```