Post type

Write a program that, given the preorder and interorder of a binary tree, performs a postorder traversal of it.

Give the exit title.

Binary tree numbers are distinct.

Input

First, the number of vertices in the tree n is given. In the next two lines, each line contains numbers spaced n apart, which is

The order will indicate the pre-order and inter-order display of the tree.

$$1 \leq n \leq 10^4$$

Exit

Write the number of numbers with spaces on a line that represent the corresponding tree subsequence representation n.

Example

Sample input

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

Sample exit

1 3 5 4 2 8 9 7 6

1 3 5 4 2 8 9 7 6