Search for an integer in a list of integers

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Input

The input begins with the positive integer n of number of integers in the list in a single line (1 <= n <= 1000000). Each integer (-1000000 < integer < 1000000) of the list are in a single line. After a blank line a single line has the number t of integers to be searched one after the other (1 <= t <= 100000) followed by t integers one in each single line.

Output

For each integer to be searched in n integers, print the index (0 <= index <= n-1) at which the integer to be searched appears first time in the list; print -1 if the the search is unsuccessful.

Example

Input:
4
999999
0
-999999
1234

6
123
1234
-1234
0
999999
999999

Output:
-1
3
-1
1
0
0