Valar Morghulis Question-2

(NOTE: Apart from taking the input, the required time complexity is $O(logn)$ and the required space complexity is $O(1)$. All the solutions not following the constraints will be discarded.)

There is an array of distinct integers **arr** of size **n**.

This array is arranged in descending order first and the elements are moved in a circular fashion unknown number of times and this modified array is then given to you.

(i.e., **5 4 3 2 1** might become **1 5 4 3 2** or **2 1 5 4 3** or **3 2 1 5 4** and so on).

Also, you are given another integer **x** which is guaranteed to be present in **arr**.

Search and print the index of **x** in **arr**.

Input Format

- First line contains a single integer **n**.
- Second line contains **n** space separated integers.
- Third line contains a single integer **x**.

Constraints

- $1 \leq n \leq 10^6$
- $1 \leq arr[i] \leq 10^9$
- $1 \leq x \leq 10^9$

Output Format

A single line denoting the resultant index.

Sample Input 0

```
5
7 4 16 13 10
7
```

Sample Output 0

```
0
```