Max Power

You are given two sequences of positive integers $a_1, a_2, ..., a_n$ and $b_1, b_2, ..., b_n$ of length *n* each. You are to write a program which finds *k* such that a_k to the power of b_k is maximal.

Input

The first line of input contains a positive integer *n*, not greater than 10000. In the second line you are given a set of positive integers a_i separated by spaces, and in the third line – integers b_i. All numbers in both sequences are not greater than 10000. It is guaranteed that all power values are different.

Output

The output must contain one number – the answer to the problem.

Score

The score to this problem is equal to (1000 - t), where t is the time used by your solution, in milliseconds. If your solution works for more than 1 second then you get 0 points.

Example

Input:
5
1 2 2 3 3
100 1 3 2 1

Output:
4