

# Problem K. Orthogonality

**Time limit** 2000 ms

**Mem limit** 1048576 kB

## Problem Statement

Given are two  $N$ -dimensional vectors  $A = (A_1, A_2, A_3, \dots, A_N)$  and  $B = (B_1, B_2, B_3, \dots, B_N)$ .

Determine whether the inner product of  $A$  and  $B$  is 0.

In other words, determine whether  $A_1B_1 + A_2B_2 + A_3B_3 + \dots + A_NB_N = 0$ .

## Constraints

- $1 \leq N \leq 100000$
- $-100 \leq A_i \leq 100$
- $-100 \leq B_i \leq 100$
- All values in input are integers.

## Input

Input is given from Standard Input in the following format:

```
N
A1 A2 A3 ... AN
B1 B2 B3 ... BN
```

## Output

If the inner product of  $A$  and  $B$  is 0, print **Yes** ; otherwise, print **No** .

## Sample 1

Input	Output
2 -3 6 4 2	Yes

The inner product of  $A$  and  $B$  is  $(-3) \times 4 + 6 \times 2 = 0$ .

### Sample 2

Input	Output
2 4 5 -1 -3	No

The inner product of  $A$  and  $B$  is  $4 \times (-1) + 5 \times (-3) = -19$ .

### Sample 3

Input	Output
3 1 3 5 3 -6 3	Yes

The inner product of  $A$  and  $B$  is  $1 \times 3 + 3 \times (-6) + 5 \times 3 = 0$ .