A Math Contest P1 - Arrays

Time limit: 1.0s **Memory limit:** 256M

You are given an array of N integers $a_1, a_2, \ldots, a_N$. Suppose $b_1, b_2, \ldots, b_N$ is any array of N integers. Find the minimum possible **positive** value of $X = \sum_{i=1}^{N} a_i \times b_i$.

Constraints

$1 \leq N \leq 2 \times 10^5$

$-10^9 \leq a_i \leq 10^9$

At least one $a_i \neq 0$.

Input Specification

The first line contains an integer, N.

The next line contains N space-separated integers, $a_1, a_2, \ldots, a_N$.

Output Specification

Output the minimum positive value of X.

Sample Input

```
3
2 -1 3
```

Sample Output

```
1
```

Explanation for Sample

One possible value for array b is $[-2, 4, 3]$. Then, $X = (2)(-2) + (-1)(4) + (3)(3) = 1$. This is the minimum positive value of X amongst all values of b.