Asacoco Prescription

Watame needs to consume asacoco. However, consuming too much asacoco can be dangerous, so she consults with a doctor.

The doctor recommends her a limit for every day. Let A_i be **a real number** denoting the limit of asacoco allowed to be consumed in the **i**-th day.

Uniquely, the array A_i is a non-decreasing arithmetic sequence.

An element A_i **can be represented as $A_0 + i * d$ where d is a constant real number. It is guaranteed that A_0 is an integer.**

After recieving the doctor's prescription, Watame went home only to realise the reciept has a different array from the recommendation given from the doctor.

What was printed on the reciept was an array of integers S_i with a note that $S_i = [A_i]$.

Here, **[x]** denotes the largest integer less than or equal to **x** (floor function).

For rehabilitation, Watame is forced to minimize **d** (since minimizing **d** minimizes A_i too, thus less asacoco for Watame) such that the information printed on the reciept is still valid.

If there exists a valid d, it can be represented as a fraction **P / Q** where **GCD(P, Q) = 1**. Print the answer in the form of **P * Q^{-1}** modulo **$10^9 + 7$**.

There can be cases where the reciept can be faulty (the cashier and the doctor may as well be drunk of asacoco) and there is no valid **d**. In this case, print **-1** instead.

Input Format

The first line contains an integer **N, the size of the array S**.

The next lines contains **N** integers S_i.

Output Format

Print an integer representing the answer in the form of **P * Q^{-1}** modulo **$10^9 + 7$**.

If there does not exist a valid **d** (the reciept may be faulty), print -1 instead.

Sample Input 1

6

1 2 3 4 5 6

Sample Output 1

1

Sample Input 2

5

3 3 3 3 4

Sample Output 2

250000002

Sample Input 3

2

4 1

Sample Output 3

-1

Explanation

The answers for sample 1 and 2 in decimal format is 1.0 and 0.25 respectively.

Constraints

$1 \leq N \leq 10^5$

$1 \leq S_i \leq 10^9$