Problem C
Polynomially Constructed

You are given an integer N and an array of **integers** $[y_1, y_2, \ldots, y_N]$ of size N.

You want to construct the following:

- a polynomial $P(x) = c_0x^0 + c_1x^1 + \ldots + c_dx^d$ where the coefficients are **real numbers**, and for some *degree* d;
- an array of **real numbers** $[x_1, x_2, \ldots, x_N]$ of size N such that $x_1 < x_2 < \ldots < x_N$;

and the construction satisfies $P(x_1) = y_1$, $P(x_2) = y_2$, ..., $P(x_N) = y_N$.

It can be proven that such a construction always exists. Your task is to find the minimum polynomial degree d that you can construct.

Input

The first line contains an integer N ($1 \leq N \leq 100\,000$). The second line contains N integers representing y_i ($-10^9 \leq y_i \leq 10^9$).

Output

Output the minimum degree d in a single line.

Sample Input 1	Sample Output 1
5 2 -1 1 1 0	3

Explanation of Sample 1: We can construct a polynomial $\frac{29}{3}x^0 + 8x^1 + 0x^2 - \frac{2}{3}x^3$, and array $[-2.81273..., -2, -1.24361..., 3.86937..., 3.91423...]$.

Sample Input 2	Sample Output 2
5 1 0 0 0 1	4

Sample Input 3	Sample Output 3
3 0 0 0	0

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