Arithmetic Sequence

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	512 megabytes

Alice received a sequence of n integers as her birthday gift. As she likes arithmetic sequences, she wants to turn her gift into an arithmetic one. In an arithmetic sequence, the difference between one term and the next is a constant.

She can use her magical power and cast spells on a sequence. And she can cast two types of spells. The first type is the "increment spell": When she uses this spell, she can choose a number in this sequence and add this number by one. The other type, as you have guessed, is the "decrement spell": She can choose a number in this sequence and subtract this number by one. Casting either type of spell costs her 1 Mana (the unit of magical power).

Now she wonders about the minimum Manas she would use to make her gift arithmetic. Alice is not proficient in math skills, so she asks for your help.

Input

The first line consists of an integer n ($1 \leq n \leq 2 \times 10^5$) — the length of the sequence.

The second line consists of n integers a_i ($0 \leq |a_i| \leq 10^{13}$ and $1 \leq i \leq n$) separated by space — the initial sequence.

Output

Output only one integer — the minimum Manas she would use to make the sequence arithmetic.

Example

standard input	standard output
5 2 4 7 9 9	3

Note

The best way is $(2, 4, 7, 9, 9) \to (2, 4, 6, 9, 9) \to (2, 4, 6, 8, 9) \to (2, 4, 6, 8, 10)$, which cost Alice 3 Manas.