Problem A. Where is the legend?

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

Given an array a of n positive integers. In one operation, you can remove a number from the array a, if it is equal to the arithmetic mean of its neighbors. However, you can not remove the first and last numbers of the array. Formally, you can remove the number a_i, if $a_i = \frac{a_{i-1}+a_{i+1}}{2}$. For example, if you remove 6 from an array $[1, 3, 6, 9, 4]$, the resulting array would be $[1, 3, 9, 4]$.

What is the shortest possible length of the array you could get using the operation described above some number of times(maybe, zero)?

Input

The first line contains one integer t ($1 \le t \le 10^3$) — the number of test cases.

The next $2 \cdot t$ lines are in the following pattern:

First line of each test case contains one number n ($3 \le n \le 3 \cdot 10^5$) — the length of an array a.

The second line of each test case contains n numbers $a_1, \ldots, a_n$ ($1 \le a_i \le 10^9$, for each i, where $1 \le i \le n$).

It is guaranteed, that the sum of n across all test cases does not exceed $3 \cdot 10^5$.

Output

For each test case print one number — the shortest possible length of the array a, that you could get by using described operation.

Scoring

Let S be the sum of n over all test cases.

Subtask	Additional constraints	Score	Necessary subtasks
0	Examples	0	—
1	$n \le 15$, $S \le 400$	14	0
2	$a_i = i$	13	—
3	$a_i \le 3$	9	—
4	$n \le 300, S \le 1000$	17	1
5	$n \le 3000, S \le 10000$	18	4
6	—	29	2, 3, 5

Example

standard input	standard output
3 5 1 2 3 4 5 7 1 3 5 6 7 8 10 3 1 1 1	2 4 2

Note

For example, in the array $[1, 2, 4]$, there are no possible operations, since $\frac{1+4}{2} = 2.5 \ne 2$.