DMOPC '21 Contest 9 P1 - Board Numbers

Time limit: 2.0s **Memory limit:** 256M

You wrote your favourite N positive integers on the board and then wrote the $N-1$ adjacent sums too. Someone erased your integers, but not your sums. Instead of being mad, you became quite curious: how many arrays of N numbers could generate these sums?

That is, given an array of adjacent sums, how many arrays of positive integers generate these sums?

Constraints

$2 \leq N \leq 10^6$

$1 \leq a_i \leq 10^9$

Subtask 1 [10%]

$N = 2$

Subtask 2 [30%]

$N = 3$

Subtask 3 [30%]

$1 \leq a_i \leq 10$

Subtask 4 [30%]

No additional constraints.

Input Specification

The first line contains the integer N.

The next line contains $N-1$ space-separated integers a_i, the adjacent sums on the board.

Output Specification

Output the number of arrays of positive integers that could yield a_i. If there is a mistake and no valid array exists, output 0.

Sample Input

```
4
5 4 3
```

Sample Output

```
2
```

Explanation

The two arrays are `2 3 1 2` and `3 2 2 1`.