

## F - Mean Sequence

Consider a nondecreasing sequence of integers  $s_1, \dots, s_{n+1}$  ( $s_i \leq s_{i+1}$  for  $1 \leq i \leq n$ ). The sequence  $m_1, \dots, m_n$  defined by  $m_i = \frac{1}{2}(s_i + s_{i+1})$ , for  $1 \leq i \leq n$ , is called the *mean sequence* of sequence  $s_1, \dots, s_{n+1}$ . For example, the mean sequence of sequence 1, 2, 2, 4 is the sequence 1.5, 2, 3. Note that elements of the mean sequence can be fractions. However, this task deals with mean sequences whose elements are integers only.

Given a nondecreasing sequence of  $n$  integers  $m_1, \dots, m_n$ , compute the number of nondecreasing sequences of  $n + 1$  integers  $s_1, \dots, s_{n+1}$  that have the given sequence  $m_1, \dots, m_n$  as mean sequence.

### Task

Write a program that reads nondecreasing sequences of integers. For each sequence, your program must calculate and print the number of nondecreasing sequences for which the given sequence is a mean sequence. For example, there are four nondecreasing integer sequences for which 2, 5, 9 is a mean sequence. The sequences are: [2, 2, 8, 10], [1, 3, 7, 11], [0, 4, 6, 12], and [-1, 5, 5, 13].

### Input

The first line contains an integer that indicates the number of test cases. Then, each test case begins with an integer  $n$ , where  $0 < n \leq 100$ . The following input line contains the sequence  $m_1, \dots, m_n$ . Each value of  $m_i$  is an integer between 0 and 100,000.

### Output

For each test case, output a single integer that indicates the number of nondecreasing integer sequences that have the input sequence as the mean sequence.

### Sample Input

```
2
3
2 5 9
3
1 7 8
```

### Sample Output

```
4
2
```