

D. Exam in MAC

time limit per test: 2 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

The Master's Assistance Center has announced an entrance exam, which consists of the following.

The candidate is given a set s of size n and some strange integer c . For this set, it is needed to calculate the number of pairs of integers (x, y) such that $0 \leq x \leq y \leq c$, $x + y$ is not contained in the set s , and also $y - x$ is not contained in the set s .

Your friend wants to enter the Center. Help him pass the exam!

Input

Each test consists of multiple test cases. The first line contains a single integer t ($1 \leq t \leq 2 \cdot 10^4$) — the number of test cases. The description of the test cases follows.

The first line of each test case contains two integers n and c ($1 \leq n \leq 3 \cdot 10^5, 1 \leq c \leq 10^9$) — the size of the set and the strange integer.

The second line of each test case contains n integers s_1, s_2, \dots, s_n ($0 \leq s_1 < s_2 < \dots < s_n \leq c$) — the elements of the set s .

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

Output

For each test case, output a single integer — the number of suitable pairs of integers.

Example

input	Copy
8	
3 3	
1 2 3	
1 179	
57	
4 6	
0 3 5 6	
1 1	
1	
5 10	
0 2 4 8 10	
5 10	
1 3 5 7 9	
4 10	
2 4 6 7	
3 1000000000	
228 1337 998244353	
output	Copy
3	
16139	
10	
2	
33	
36	
35	
499999998999122959	

Note

In the first test case, the following pairs are suitable: $(0, 0), (2, 2), (3, 3)$.

In the third test case, the following pairs are suitable: $(0, 1), (0, 2), (0, 4), (1, 3), (2, 6), (3, 4), (3, 5), (4, 5), (4, 6), (5, 6)$.

Codeforces Round 932 (Div. 2)

Finished

→ Practice?

Want to solve the contest problems after the official contest ends? Just register for practice and you will be able to submit solutions.

Register for practice

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Problem tags

binary search

combinatorics

implementation

math

*1800

No tag edit access

→ Contest materials

- Announcement (en)
- Tutorial (en)

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