

Median Equals X

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 512 megabytes

You are given an integer sequence $a_1, a_2, \dots, a_n$ of length n , and an integer x .

Define a subsequence of the sequence as follows: for any non-empty set of indices $\{i_1, i_2, \dots, i_m\}$ ($i_1 < i_2 < \dots < i_m$) chosen from $1, \dots, n$, taking $a_{i_1}, \dots, a_{i_m}$ in their original order is a subsequence. Define its median as follows: sort the m chosen values into $v_1 \leq v_2 \leq \dots \leq v_m$, then:

- if m is odd, the median is the middle value $v_{(m+1)/2}$;
- if m is even, the median is the average of the two middle values, $\frac{v_{m/2} + v_{m/2+1}}{2}$ (this average need not be an integer, but the problem only cares whether it is exactly equal to x).

Find the number of subsequences whose median is exactly x . Since this number can be very large, output it modulo 998244353.

Note: even if two different index sets happen to pick out the exact same multiset of values (possible since the sequence may contain repeated numbers), they are still counted as two distinct subsequences. It is the index set itself, not the multiset of chosen values, that distinguishes subsequences. The empty index set is not a subsequence and is never counted.

Input

Each test contains multiple test cases. The first line contains the number of test cases t ($1 \leq t \leq 10^4$).

For each testcase:

- The first line contains two integers n and x ($1 \leq n \leq 2 \times 10^5$, $-10^9 \leq x \leq 10^9$), representing the length of the sequence a and the target median value.
- The second line contains n integers $a_1, a_2, \dots, a_n$ ($-10^9 \leq a_i \leq 10^9$), representing the elements of the given sequence.

It is guaranteed that the sum of n over all test cases does not exceed 2×10^5 .

Output

For each test case, output one line with one integer: the number of subsequences whose median is exactly x , modulo 998244353.

Example

standard input	standard output
2	14
5 3	1
1 3 5 3 2	
2 0	
-1 1	