Problem F. Balanced Array

Time limit 1000 ms
Mem limit 262144 kB

You are given a positive integer n, it is guaranteed that n is even (i.e. divisible by 2).

You want to construct the array a of length n such that:

- The first $\frac{n}{2}$ elements of a are even (divisible by 2);
- the second $\frac{n}{2}$ elements of a are odd (not divisible by 2);
- **all elements of a are distinct and positive**;
- the sum of the first half equals to the sum of the second half ($\sum\limits_{i=1}^{\frac{n}{2}} a_i = \sum\limits_{i=\frac{n}{2}+1}^{n} a_i$).

If there are multiple answers, you can print any. It is **not guaranteed** that the answer exists.

You have to answer t independent test cases.

Input

The first line of the input contains one integer t ($1 \le t \le 10^4$) — the number of test cases. Then t test cases follow.

The only line of the test case contains one integer n ($2 \le n \le 2 \cdot 10^5$) — the length of the array. It is guaranteed that that n is even (i.e. divisible by 2).

It is guaranteed that the sum of n over all test cases does not exceed $2 \cdot 10^5$ ($\sum n \le 2 \cdot 10^5$).

Output

For each test case, print the answer — "`NO`" (without quotes), if there is no suitable answer for the given test case or "`YES`" in the first line and **any** suitable array $a_1, a_2, \ldots, a_n$ ($1 \le a_i \le 10^9$) satisfying conditions from the problem statement on the second line.

Examples

Input	Output
5 2 4 6 8 10	NO YES 2 4 1 5 NO YES 2 4 6 8 1 3 5 11 NO