Maximise the Sum

Problem Statement

You are given an array with N integers: $A[1], A[2], \ldots, A[N]$ (where N is even). You are allowed to permute the elements however you want. Say, after permuting the elements, you end up with the array $A'[1], A'[2], \ldots, A'[N]$. Your goal is to maximize the following sum:

$$|A'[1] - A'[2]| + |A'[3] - A'[4]| + \cdots + |A'[N-1] - A'[N]|$$

Here, $|x|$ denotes the absolute value of x.
You have to print the maximum sum achievable.

Input Format

- The first line contains T, the number of test cases.
- Each test case starts with an integer N in the first line.
- The second line of each test case contains N space-separated integers, denoting the values of array A.

Output Format

For each test case, output the maximum sum achievable in a new line.

Constraints

- $1 \leq T \leq 10^5$
- $1 \leq N \leq 10^5$
- N is even
- $|A[i]| \leq 10^9$
- Sum of N over all test cases $\leq 2 \times 10^5$

Example Input

```
1
4
1 -3 2 -3
```

Example Output

```
9
```

Explanation

The original array is $\{1, -3, 2, -3\}$.

Suppose you permute it and get the array $\{2, 1, -3, -3\}$. Then the corresponding sum would be:

$$|2 - 1| + |-3 - (-3)| = 1 + 0 = 1$$

But suppose you permute it differently and get the array $\{-3, 2, 1, -3\}$. Then the corresponding sum would be:

$$|-3 - 2| + |1 - (-3)| = 5 + 4 = 9$$

You can check that you cannot do any better, and hence the answer is 9.