Gid-osh

During her next concert, Adobo is planning to perform a live cover of *Gid-osh*, a popular vocaloid song known for its wide vocal range required from the singer.

The song contains n music notes in total, numbered from 1 to n. The i-th note is represented by its pitch value a_i. The **vocal range** of the song is the difference between the pitch of the highest note and the pitch of the lowest note in the song. More formally, it is defined as $\max(a_1, a_2, \ldots, a_n) - \min(a_1, a_2, \ldots, a_n)$.

However, before the day of the concert, Adobo ate a bit too much sweet potato and flying onion. As a consequence, her voice changed, and she cannot perform songs requiring an excessively wide vocal range. Therefore, she decided to skip **exactly one note** from the song, so that the vocal range of the remaining song with $n - 1$ notes is minimized.

Help Adobo find the minimum possible vocal range after skipping exactly one note from the song and save her concert!

Input

The first line contains a integer t $(1 \le t \le 1\,000)$ — the number of test cases. The description of each test case is as follows.

- The first line contains a single integer n $(2 \le n \le 100)$ — the number of notes in the song.
- The second line contains n integers $a_1, a_2, \ldots, a_n$ $(1 \le a_i \le 100)$ — the pitches of the notes in the song.

Output

For each test case, print a single integer — the minimum possible vocal range possible of the remaining song after skipping exactly one note.

Sample Input 1	Sample Output 1
3 3 2 8 3 5 2 4 9 6 5 2 1 100	1 4 0

Sample Explanation

In the first test case, there are three ways to skip exactly one note from the song:

- Removing the first note. The remaining song consists of two notes 8 and 3 and has the vocal range of $\max(8, 3) - \min(8, 3) = 5$.
- Removing the second note. The remaining song consists of two notes 2 and 3 and has the vocal range of $\max(2, 3) - \min(2, 3) = 1$.
- Removing the third note. The remaining song consists of two notes 2 and 8 and has the vocal range of $\max(2, 8) - \min(2, 8) = 6$.

Therefore, removing the 2^{nd} note is the most optimal way to achieve the minimum vocal range of the remaining song (which is 1).

In the second test case, the most optimal way is to skip the 3^{rd} note from the song. The remaining notes are $[2, 4, 6, 5]$, which has the vocal range of 4.

In the third test case, no matter which note of the two are removed, the vocal range of the remaining song containing a single note is always 0.