

DMPG '17 S1 - Molly and Difference

Time limit: 2.0s **Memory limit:** 256M

Molly loves subtraction. She also loves non-negative numbers. For her birthday, Molly received an array A_1, A_2, \dots, A_N of integers. To make up for the fact that you forgot to bring her a present, you decide to tell her the minimum value of d such that $d = |A_i - A_j|$, such that $1 \leq i, j \leq N$.

Constraints

For all subtasks:

$$-10^9 \leq A_i \leq 10^9$$

Subtask 1 [40%]

$$2 \leq N \leq 1\,000$$

Subtask 2 [60%]

$$2 \leq N \leq 10^6$$

Input Specification

Line 1: An integer, N .

Line 2: N space separated integers, the array A_1, A_2, \dots, A_N .

Output Specification

The minimum value of d .

Sample Input

```
5
21 -10 7 3 18
```

Sample Output

```
3
```