

## B. Checkpoints

time limit per test: 1 second  
memory limit per test: 256 megabytes  
input: standard input  
output: standard output

Vasya takes part in the orienteering competition. There are  $n$  checkpoints located along the line at coordinates  $x_1, x_2, \dots, x_n$ . Vasya starts at the point with coordinate  $a$ . His goal is to visit at least  $n - 1$  checkpoint in order to finish the competition. Participant are allowed to visit checkpoints in arbitrary order.

Vasya wants to pick such checkpoints and the order of visiting them that the total distance travelled is minimized. He asks you to calculate this minimum possible value.

### Input

The first line of the input contains two integers  $n$  and  $a$  ( $1 \leq n \leq 100\,000$ ,  $-1\,000\,000 \leq a \leq 1\,000\,000$ ) — the number of checkpoints and Vasya's starting position respectively.

The second line contains  $n$  integers  $x_1, x_2, \dots, x_n$  ( $-1\,000\,000 \leq x_i \leq 1\,000\,000$ ) — coordinates of the checkpoints.

### Output

Print one integer — the minimum distance Vasya has to travel in order to visit at least  $n - 1$  checkpoint.

### Examples

<b>input</b>
3 10 1 7 12
<b>output</b>
7

  

<b>input</b>
2 0 11 -10
<b>output</b>
10

  

<b>input</b>
5 0 0 0 1000 0 0
<b>output</b>
0

### Note

In the first sample Vasya has to visit at least two checkpoints. The optimal way to achieve this is the walk to the third checkpoints (distance is  $12 - 10 = 2$ ) and then proceed to the second one (distance is  $12 - 7 = 5$ ). The total distance is equal to  $2 + 5 = 7$ .

In the second sample it's enough to visit only one checkpoint so Vasya should just walk to the point  $-10$ .