

Punto de Control

Vasya takes part in the competition guidance. There are n control points located along the line at coordinates x_1, x_2, \dots, x_n . Vasya starts at the point with coordinates. Its goal is to visit at least $n - 1$ control points in order to finish the race. Participants are allowed to visit checkpoints in random order.

Vasya wants to collect these checkpoints, he asks for help to calculate the total distance traveled is minimized.

Input

The first line of the input contains two integers n and a ($1 \leq n \leq 100\,000$, $-1\,000\,000 \leq a \leq 1000000$) - the number of checkpoints and the starting position of Vasya, respectively.

The second line contains n integers x_1, x_2, \dots, x_n ($-1\,000\,000 \leq x_i \leq 1000000$) - coordinates of the control points.

Output

Print an integer - the minimum distance that Vasya has to travel in order to visit at least $n - 1$ checkpoint

Example

Input:

3 10

1 7 12

Output:

7

Input:

2 0

11 -10

Output:

10

Input:

5 0

0 0 1000 0 0

Output:

10

Nota

In the first example Vasya should visit two points. The best way to accomplish this is to go first to the third control point (the distance is $12 - 10 = 2$) and then proceed to the second (the distance

The second is enough to visit a single point of control mode Vasya should simply go to the extent -10 . Distance 10.