

# Problem C. C

**Time limit** 1000 ms

**Mem limit** 262144 kB

Vanya walks late at night along a straight street of length  $l$ , lit by  $n$  lanterns. Consider the coordinate system with the beginning of the street corresponding to the point 0, and its end corresponding to the point  $l$ . Then the  $i$ -th lantern is at the point  $a_i$ . The lantern lights all points of the street that are at the distance of at most  $d$  from it, where  $d$  is some positive number, common for all lanterns.

Vanya wonders: what is the minimum light radius  $d$  should the lanterns have to light the whole street?

## Input

The first line contains two integers  $n, l$  ( $1 \leq n \leq 1000, 1 \leq l \leq 10^9$ ) — the number of lanterns and the length of the street respectively.

The next line contains  $n$  integers  $a_i$  ( $0 \leq a_i \leq l$ ). Multiple lanterns can be located at the same point. The lanterns may be located at the ends of the street.

## Output

Print the minimum light radius  $d$ , needed to light the whole street. The answer will be considered correct if its absolute or relative error doesn't exceed  $10^{-9}$ .

## Sample 1

Input	Output
7 15 15 5 3 7 9 14 0	2.5000000000

## Sample 2

Input	Output
2 5 2 5	2.0000000000

**Note**

Consider the second sample. At  $d = 2$  the first lantern will light the segment  $[0, 4]$  of the street, and the second lantern will light segment  $[3, 5]$ . Thus, the whole street will be lit.