C. Three Base Stations

The New Vasjuki village is stretched along the motorway and that's why every house on it is characterized by its shift relative to some fixed point — the x_i coordinate. The village consists of n houses, the i-th house is located in the point with coordinates of x_i.

TELE3, a cellular communication provider planned to locate three base stations so as to provide every house in the village with cellular communication. The base station having power d located in the point t provides with communication all the houses on the segment $[t - d, t + d]$ (including boundaries).

To simplify the integration (and simply not to mix anything up) all the three stations are planned to possess the equal power of d. Which minimal value of d is enough to provide all the houses in the village with cellular communication.

Input

The first line contains an integer n ($1 \leq n \leq 2 \cdot 10^5$) which represents the number of houses in the village. The second line contains the coordinates of houses — the sequence $x_1, x_2, ..., x_n$ of integer numbers ($1 \leq x_i \leq 10^9$). It is possible that two or more houses are located on one point. The coordinates are given in a arbitrary order.

Output

Print the required minimal power d. In the second line print three numbers — the possible coordinates of the base stations' location. Print the coordinates with 6 digits after the decimal point. The positions of the stations can be any from 0 to $2 \cdot 10^9$ inclusively. It is accepted for the base stations to have matching coordinates. If there are many solutions, print any of them.

Examples

input
4
1 2 3 4

output
0.500000
1.500000 2.500000 3.500000

input
3
10 20 30

output
0
10.000000 20.000000 30.000000

input
5
10003 10004 10001 10002 1

output
0.500000
1.000000 10001.500000 10003.500000