

Square Locator

Input file: standard input
Output file: standard output
Time limit: 1 second
Memory limit: 256 megabytes

There is a square $ABCD$ whose vertices have integer coordinates, with A on the positive y -axis.

You are given the squared distances AO^2, BO^2, CO^2, DO^2 , where $O(0,0)$ is the origin. Find the vertices of the square.

Input

The only line of each test contains four integers AO^2, BO^2, CO^2, DO^2 ($1 \leq AO^2, BO^2, CO^2, DO^2 \leq 10^{18}$) — the **squares** of the distances of the vertices of the square to the origin.

Output

Output one line containing seven space-separated integers $A_y, B_x, B_y, C_x, C_y, D_x, D_y$, representing the coordinates of the vertices of the square $A(0, A_y), B(B_x, B_y), C(C_x, C_y), D(D_x, D_y)$.

The input is given in such a way that such integers exist. If there are multiple possible answers, print any of them.

Example

standard input	standard output
36 5 10 41	6 -1 2 3 1 4 5

Note

The first test case is pictured below.

