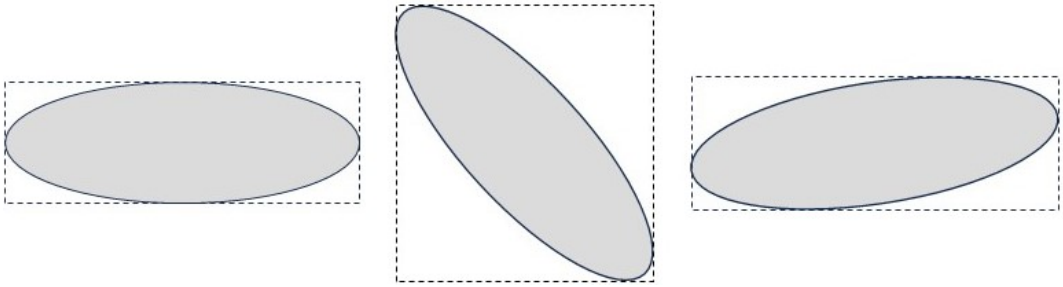
Problem F
Ellipse Eclipse
Time limit: 1 second

An *Ellipse* is a 2D geometric figure. It consists of the set of all points such that the sum of the distance from each point to two specific points is constant. The two specific points are called the *Foci* of the ellipse. The *Major Axis* of an ellipse is the diameter of the ellipse that runs through both foci. It is the longest diameter of the ellipse.

Given an ellipse's two foci and the length of its major axis, determine the coordinates of the tightest axis-aligned bounding box that can block out that ellipse.



Input

The single line of input contains five integers x_1, y_1, x_2, y_2 ($-100 \leq x_1, y_1, x_2, y_2 \leq 100$) and a ($\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \leq a \leq 1{,}000$), where the two foci of the ellipse are at (x_1, y_1) and (x_2, y_2) and the length of the major axis is a (Note that's the major axis, not the semi-major axis or the major radius).

Output

Output four space-separated real numbers on a single line. The numbers, in order, are x_{low}, y_{low}, x_{high}, y_{high}, where $(x_{\text{low}}, y_{\text{low}})$ is the lower left corner of the tightest bounding box of the ellipse, and $(x_{\text{high}}, y_{\text{high}})$ is the upper right corner of the tightest bounding box of the ellipse. Each output will be considered correct if it is within an absolute or relative error of 10^{-4}.

Sample Input 1	Sample Output 1
-5 0 5 0 16	-8.000000 -6.244998 8.000000 6.244998

Sample Input 2	Sample Output 2
51 23 19 67 70	7.778685 13.871235 62.221315 76.128765

This page is intentionally left blank.