Geometry and a Square

Is there anyone who doesn't love geometry?! Just imagine: on the plane you are given a square ABCD, with vertices given in the clockwise direction. Also given is a point P which is different from all of A, B, C or D. Have you imagined it? Interested? Ok, let's continue!

Through vertex A a line *a* is drawn that is perpendicular to line BP, through vertex B a line *b* is drawn that is perpendicular to line CP, through vertex C a line *c* is drawn that is perpendicular to line DP, through vertex D a line *d* is drawn that is perpendicular to line AP. Do the lines *a*, *b*, *c* and *d* cross each other in one point? Ok, it depends on what the square is and what point P is given. Write the program that discovers if these lines cross in one point, and if so, finds the coordinates of this point.

Input

In the first line you are given the integer coordinates of the point in which diagonals of the square intersect. In the second line you are given one integer - the length of the side of the square. In the third line you are given the integer coordinates of point P. The integers do not exceed 100, in terms of absolute value.

Output

For each test case you must output YES if the sought point exsists, and NO otherwise. If you answer YES then in the second line you must output the coordinates of the intersection point. Coordinates must be rounded to one digit after the point.

Example

Input:
10 10
20
5 12

Output:
YES
8.0 5.0

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