

K: Regular Convex Polygon

Time Limit: 1 second(s)

A regular convex polygon is a polygon where each side has the same length, and all interior angles are equal and less than 180 degrees. A square, for example, is a regular convex polygon. You are given three points which are vertices of a regular convex polygon R ; can you determine the minimum number of vertices that R must have?

Input

Input contains multiple test cases. Each test case consists of three lines. Line i consists of two floating point values x_i and y_i ($-10^4 \leq x_1, y_1 \leq 10^4$) where (x_i, y_i) are the coordinates of a vertex of R . The coordinates are given with a precision of 10^{-6} , i.e., they differ from the exact coordinates by at most 10^{-6} . You may assume that for each test case the Euclidean distance between any two given points is at least 1, and R has at most 1000 vertices. The input will finish with a line containing the word END.

Output

For each test case, print one line with the minimum number of vertices that R must have.

Sample Input and Output

Sample Input 1	Output for Sample Input
-1385.736326 -146.954822	3
430.000292 -2041.361203	4
1162.736034 478.316025	
0.000000 4147.000000	
-4147.000000 0.000000	
0.000000 -4147.000000	
END	