

# I

## Regular Convex Polygon

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

Each test case consists of three lines. Line  $i$  consists of two floating point values  $x_i$  and  $y_i$  ( $-10^4 \leq x_i, y_i \leq 10^4$ ) 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

```
-1385.736326 -146.954822
430.000292 -2041.361203
1162.736034 478.316025
0.000000 4147.000000
-4147.000000 0.000000
0.000000 -4147.000000
END
```

### Sample Output

```
3
4
```