477 - Points in Figures: Rectangles and Circles

Given a list of figures (rectangles and circles) and a list of points in the x-y plane, determine for each point which figures (if any) contain the point.

Input

There will be n(≤ 10) figures descriptions, one per line. The first character will designate the type of figure ("r", "c" for rectangle or circle, respectively). This character will be followed by values which describe that figure.

- For a rectangle, there will be four real values designating the x-y coordinates of the upper left and lower right corners.

- For a circle, there will be three real values, designating the x-y coordinates of the center and the radius.

The end of the list will be signalled by a line containing an asterisk in column one.

The remaining lines will contain the x-y coordinates, one per line, of the points to be tested. The end of this list will be indicated by a point with coordinates 9999.9 9999.9; these values should not be included in the output.

Points coinciding with a figure border are not considered inside.

Output

For each point to be tested, write a message of the form:

`Point i is contained in figure j`

for each figure that contains that point. If the point is not contained in any figure, write a message of the form:

`Point i is not contained in any figure`

Points and figures should be numbered in the order in which they appear in the input.

Sample Input

```
r 8.5 17.0 25.5 -8.5
c 20.2 7.3 5.8
r 0.0 10.3 5.5 0.0
c -5.0 -5.0 3.7
r 2.5 12.5 12.5 2.5
c 5.0 15.0 7.2
*
2.0 2.0
4.7 5.3
6.9 11.2
20.0 20.0
17.6 3.2
-5.2 -7.8
9999.9 9999.9
```

Sample Output

```
Point 1 is contained in figure 3
Point 2 is contained in figure 3
Point 2 is contained in figure 5
Point 3 is contained in figure 5
Point 3 is contained in figure 6
Point 4 is not contained in any figure
Point 5 is contained in figure 1
Point 5 is contained in figure 2
Point 6 is contained in figure 4
```
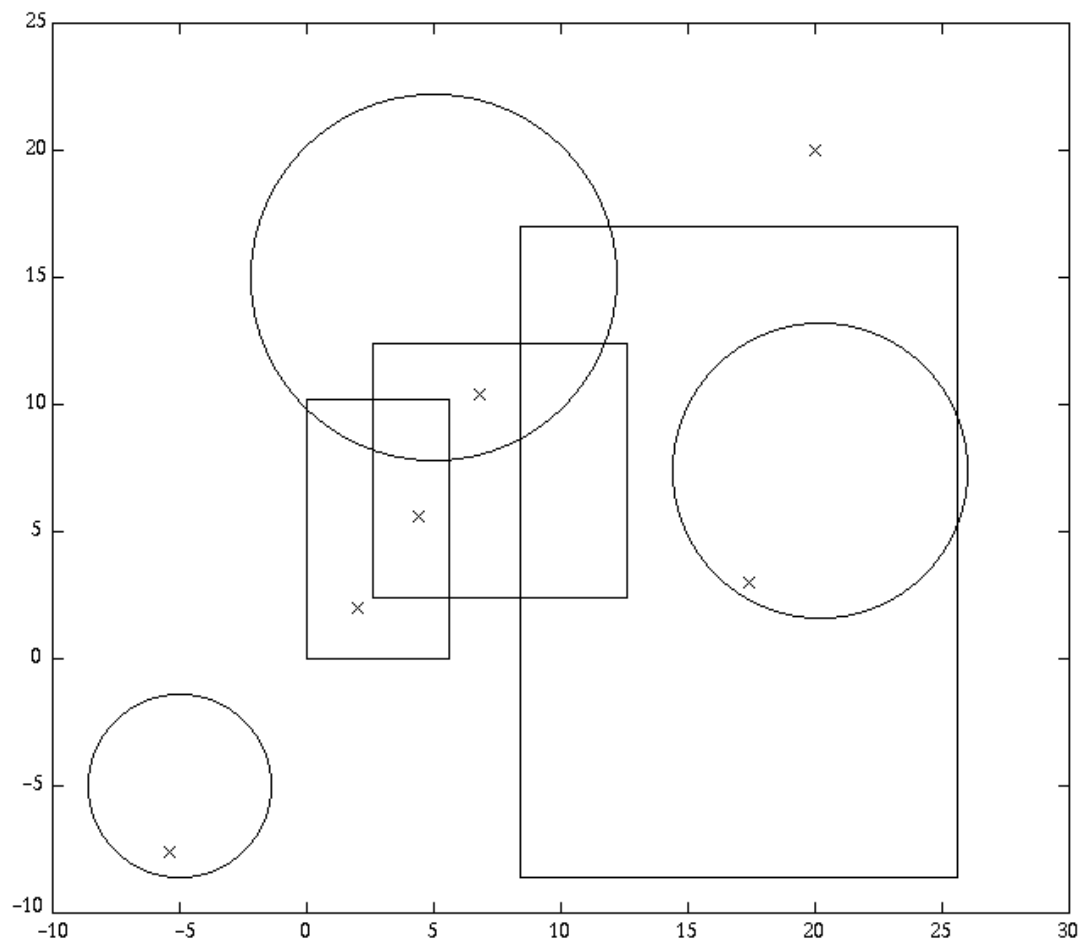

Diagrama of sample input figures and data points