# Problem 4 – Intersecting Figures

You are given **a rectangle** and **a circle** in a two-dimensional Cartesian coordinate system. Find their relative position.

A **rectangle** is defined by two points: top-left and bottom-right. All rectangle segments are parallel to the coordinate axes.

0

10

20

30

-40

-30

-20

-10

0

10

20

30

40

50

-10

**A (-30; 40)**

**B (20; 0)**

A **circle** is defined by its center and radius.

0

10

20

30

-40

-30

-20

-10

0

10

20

30

40

50

-10

**O (-10; 20)**

**R = 20**

## Input

* The input is read from the console.
* On the first line, there are the number of test cases **T**
* On the next **2 \* T** lines, there are the test cases.
* Each test case consists of exactly two text lines.
* The lines are in one of the following formats:
  + **rectangle(Ax, Ay, Bx, By)**
  + **circle(Ox, Oy, R)**
* The lines may be present in any order.

## Output

* The output consists of **T** lines.
* For each test case, print the relative position of the rectangle and circle. The position may be one of the following:
  + The rectangle is inside the circle (print **Rectangle inside circle**)
  + The circle is inside the rectangle (print **Circle inside rectangle**)
  + The rectangle and the circle intersect (print **Rectangle and circle cross**)
  + The rectangle and the circle do not intersect (and neither is inside the other) (print **Rectangle and circle do not cross**)
* See the test cases below for examples.

## Constraints

* **T** is an integer in the interval [1; 1000].
* , , , , , , and are real numbers in the range [-1000; 1000]. They have at most two symbols after the decimal point. Valid numbers are: **2**, **2.5**, **-4**, **0** **and 20.45**. Invalid numbers are -3000, 10000, 100.4242, 0.00002.
* Time limit: **100 ms**. Allowed memory: **16 MB**.

## Sample Input and Output

|  |  |
| --- | --- |
| **Input** | **Output** |
| 1 circle(-3, 1, 1.5) rectangle(-6, 4, 1, -1) | Circle inside rectangle |
| **Explanation** | |
| 0  1  2  -7  -6  -5  -4  -3  -2  -1  -1  0  1  2  3  4 | |
| **Input** | **Output** |
| 1 rectangle(-5, 3, -2, 1)  circle(-3.5, 2, 2.5) | Rectangle inside circle |

|  |  |
| --- | --- |
| **Explanation** | |
| 0  1  2  -7  -6  -5  -4  -3  -2  -1  -1  0  1  2  3  4 | |
| **Input** | **Output** |
| 1 rectangle(-3, 2, 2, -1)  circle(-3.5, 2, 2.5) | Rectangle and circle cross |
| **Explanation** | |
| 0  1  2  -7  -6  -5  -4  -3  -2  -1  -1  0  1  2  3  4 | |
| **Input** | **Output** |
| 1  circle(-6, 3, 1)  rectangle(-3, 2, 2, -1) | Rectangle and circle do not cross |

|  |
| --- |
| **Explanation** |
| 0  1  2  -7  -6  -5  -4  -3  -2  -1  -1  0  1  2  3  4 |