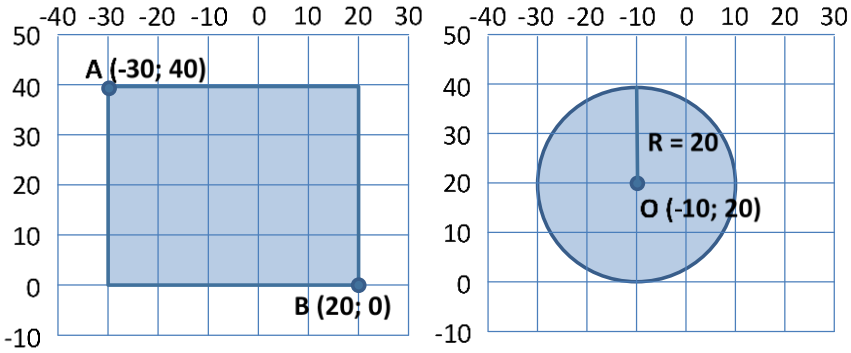
Problem 5 – Crossing Figures

You are given **a rectangle** and **a circle** in a two-dimensional Cartesian coordinate system. Find their **relative position** (one inside another, crossing figures, or non-crossing figures).

A **rectangle** is defined by two points: top-left $A(A_x; A_y)$ and bottom-right $B(B_x; B_y)$. All rectangle sides are parallel to the coordinate axes. A **circle** is defined by its center $O(O_x; O_y)$ and radius R.



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, the test cases come. All test cases are independent.
- 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 order of figures inside each test case is not specified.

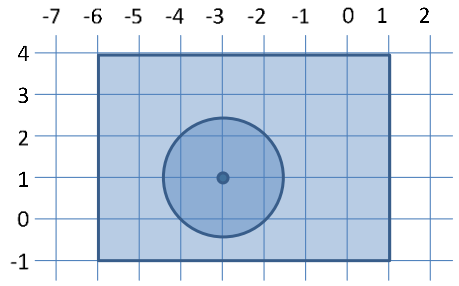
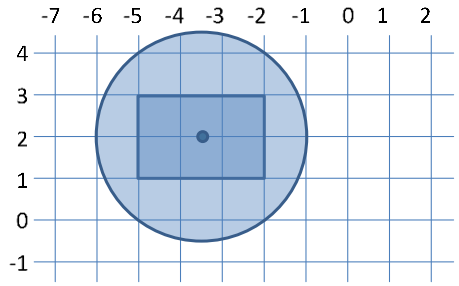
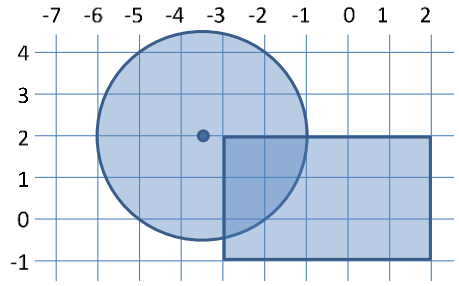
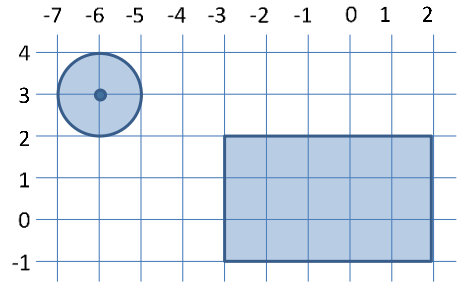
Output

- The output consists of **T** lines, one line for each test case.
- For each test case, print the relative position of the rectangle and circle:
  - 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].
- A_x, A_y, B_x, B_y, O_x, O_y, and R are real numbers in the range [-1000; 1000] with no more than 5 digits after the decimal point. R is always positive.
- The decimal separator is "**`.`**", e.g. "**`1.45`**" and "**`2.5`**".
- When calculating, consider two points to be close enough to be considered the same if their X and Y coordinates are less than 0.01 units apart.
- Time limit: **200 ms**. Allowed memory: **16 MB**.

Sample Input and Output

Input	Output	Explanation
1 circle(-3, 1, 1.4) rectangle(-6, 4, 1, -1)	Circle inside rectangle	
1 rectangle(-5, 3, -2, 1) circle(-3.5, 2, 2.5)	Rectangle inside circle	
1 rectangle(-3, 2, 2, -1) circle(-3.5, 2, 2.5)	Rectangle and circle cross	
1 circle(-6, 3, 1) rectangle(-3, 2, 2, -1)	Rectangle and circle do not cross	
7 rectangle(-3, 5, 12, -2) circle(-3, 5, 3) circle(-2, 0, 1) rectangle(-3, 5, 12, -2) rectangle(-3, 5, 12, -2) circle(4.96, 2.09, 2.01) rectangle(-3, 5, 12, -2) circle(11.29, 2.41, 2.15) circle(6, -4, 2) rectangle(-3, 5, 12, -2) rectangle(-3, 5, 12, -2) circle(13, -3, 1.41421) circle(15.78, -5.18, 0.87) rectangle(-3, 5, 12, -2)	Rectangle and circle cross Circle inside rectangle Circle inside rectangle Rectangle and circle cross Rectangle and circle cross Rectangle and circle cross Rectangle and circle do not cross	

Note: The colors in the last sample output are for easier viewing only. You do not need to produce colored output.