Abstract Data Type for Circles and its Implementation

Define an abstract data type (ADT) and its implementation in C++ of a **circle**. The ADT will be defined in a header (.h) file, and its implementation in a (.cpp) file. The circle will be constructed from the coordinates of two points (the coordinates will be integer values): (1) the circle point most at the left and (2) the point most at the right (see these two points in the example of Figure 1). The circle ADT will have operations (a) to determine the **area** of the circle (calculated as an integer value with the floor of the real area), (b) to determine **whether a point is inside** the circle.
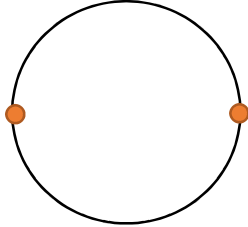

Figure 1. Two points for the constructor of the circle

Follow the following steps:

- Specify the operations with the definition of the class (only the prototypes of the function) in the header file.
- Implement the **private part** discussing at least two options that you have considered, and why you selected one over the other. The **discussion** must be included as a comment in the .h final when defining the private part-
- Implement the **public operations.**
- Upload to the **judge**, making sure it passes the judge with the appropriate main file for reading the inputs and writing the outputs.

Note: Consider **pi as 3.1416** for the calculation of the area.

Input

The first line will indicate the number of cases. Each case will be defined with a line with the two coordinates of the left point of the circle, the coordinates of the right point of the circle, and the coordinates of a third point. All the values will be integer values lower than 10,000.

Output

The output of each case should be printed in a different line. Each case will have the integer number of the area of the circle (floor value of the real value) and whether the third point is inside the circle or not, with the words "yes" or "no".

Example of input

```
5
-1 0 1 0 0 0
2 7 22 7 7 10
-100 0 100 0 -99 98
-100 0 100 0 -99 -97
-100 0 100 0 -70 -30
```

Example of output

```
3 yes
314 yes
31416 no
31416 no
31416 yes
```