Practice S11P01: Points

Week of release: Week 11

**Objectives:** Array of structures

Task statement:

Write a program **points.c** that includes a structure type **point_t** whose members are the *x*- and *y*-coordinates of a point. The coordinates are integers.

The program should include a function **read_points()** to read the number of points and points' data into an array of points, and return the number of points read. Each point is represented by its *x*- and *y*-coordinates. An example of input data of 5 points is shown below.

```
5
3  4
-1  4
5  -2
-6  -2
0  3
```

You may assume that the input data contain at least 1 point and at most 10 points.

The program should also include a function **float circle_area()** to return the area (of type **float**) of the smallest circle with centre at the origin (0, 0) that encloses all the given points. You may assume that π is 3.14159. For our example above, the area is **125.66**.
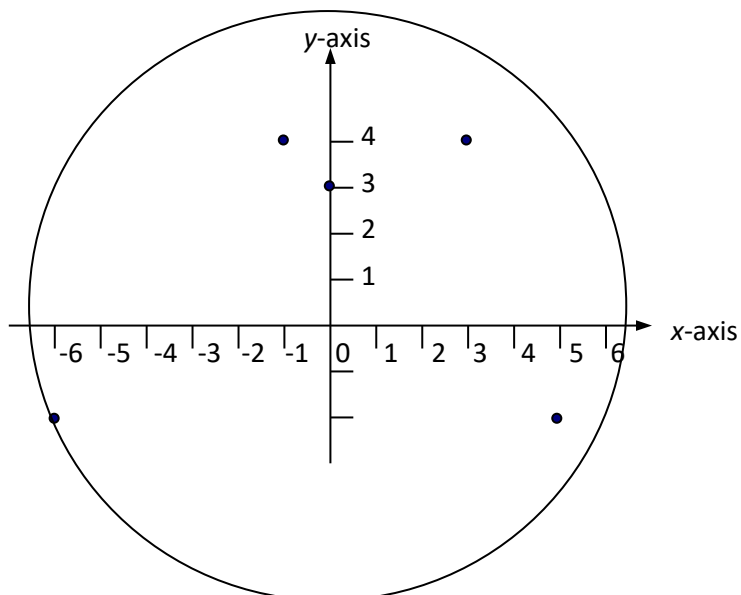
You may write additional functions if necessary.

Sample run:

```
Enter number of points: 5
Enter data for 5 points:
3 4
-1 4
5 -2
-6 -2
0 3
Area of smallest circle = 125.66
```