

Practice Exercise #53: Points

http://www.comp.nus.edu.sg/~cs1010/4_misc/practice.html

Reference: Week 13 Discussion Question 5

Date of release: 3 November 2014

Objectives: Array of structures

Task statement:

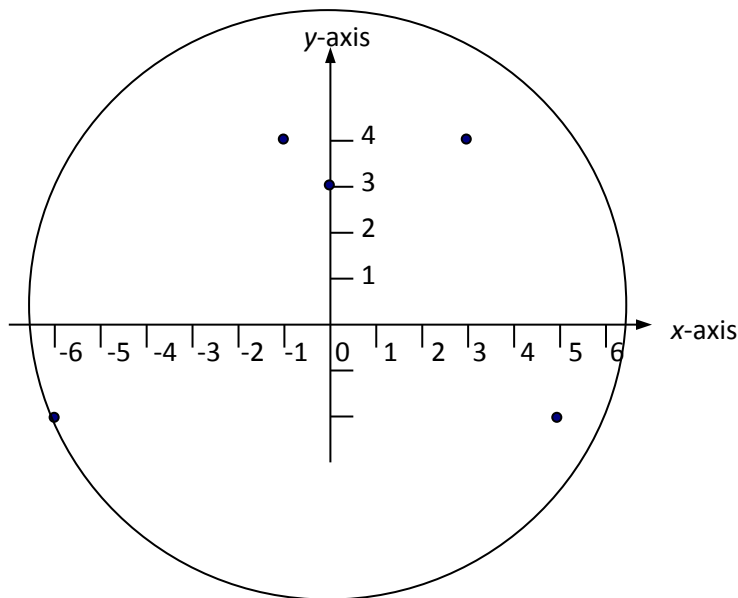
Write a program **points.c** that includes a structure type **point_t** whose members are the x- and y-coordinates of a point. The coordinates are integers.

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