Objective: The purpose of this assignment is to practice input, output, and arithmetic operations along with control structures.

Details:

For this assignment, you are actually writing 3 small programs in a single file. In essence there are 3 parts to the assignment, but everything will be in a single file and only one option can be chosen per run.

Write a program that does the following:

A) Continues to prompt the user for a choice of the following options (B-D), ending once a valid option is chosen and then doing that option's operation(s). This does not repeat once an operation has been completed. So only one pass through one of the following options is required. These options can be numbers (1, 2, 3) or letters (A, B, C).

B) Read values from the standard input stream. Input consists of:

- A double value
- A comma
- An integer value

The program stops reading if incorrect/invalid input data is entered.

Once reading input has stopped (a piece of invalid data entered), print the average of all the double values to 4 decimal places and the average of all the integer values to 4 decimal places.

C) Read in an integer value and print a message indicating if the value is a prime number.

D) Read in five double values, in the same scanf() statement or in different ones is up to you:

- The first value is the x coordinate of point P
- The second value is the y coordinate of point P
- The third value is the x coordinate of point Q
- The fourth value is the y coordinate of point Q
- The fifth value is the radius of a circle that has its origin on point Q

The program should check whether or not point P is on, inside, or outside the circle and print the appropriate message. There are a couple of ways to figure this out. I would suggest looking into either the mathematical equation or the general graphical way of finding intersections. Your search engine is your friend in finding either method.

Be sure to test each part of the program with various inputs (boundary cases, error conditions, etc.).

Submit both your source file (*.c) and an output file (*.txt) for the assignment.

40 points