**ETE 4141 Laboratory #4**

**Lab Objectives**

1. Be able to write methods

2. Be able to call methods

**Introduction**

Methods are commonly used to break a problem down into small manageable pieces. A large task can be broken down into smaller tasks (methods) that contain the details of how to complete that small task. The larger problem is then solved by implementing the smaller tasks (calling the methods) in the correct order.

This also allows for efficiencies, since the method can be called as many times as needed without rewriting the code each time.

**Task #1**

Below the main method, but in the Geometry class, create a static method called printMenu that has no parameter list and does not return a value. It will simply print out instructions for the user with a menu of options for the user to choose from. The menu should appear to the user as:

This is a geometry calculator

Choose what you would like to calculate

1. Find the area of a circle

2. Find the area of a rectangle

3. Find the area of a triangle

4. Find the circumference of a circle

5. Find the perimeter of a rectangle

6. Find the perimeter of a triangle

Enter the number of your choice:

If someone enters other than 1-6, the program should print, invalid choice, try anain.

Add a line in the main method that calls the printMenu method as shown below:

This is a geometry calculator

Choose what you would like to calculate

1. Find the area of a circle

2. Find the area of a rectangle

3. Find the area of a triangle

4. Find the circumference of a circle

5. Find the perimeter of a rectangle

6. Find the perimeter of a triangle

Enter your choice:

**Task #2 Value-Returning Methods**

1. Write a static method called circleArea that takes in the radius of the circle and returns the area using the formula A = π r 2.

2. Write a static method called rectangleArea that takes in the length and width of the rectangle and returns the area using the formula A = lw.

3. Write a static method called triangleArea that takes in the base and height of the triangle and returns the area using the formula A = ½bh.

4. Write a static method called circleCircumference that takes in the radius of the circle and returns the circumference using the formula C = 2πr.

5. Write a static method called rectanglePerimeter that takes in the length and the width of the rectangle and returns the perimeter of the rectangle using the formula P = 2l +2w.

6. Write a static method called trianglePerimeter that takes in the lengths of the three sides of the triangle and returns the perimeter of the triangle which is calculated by adding up the three sides.

**Task #3 Calling Methods**

Add lines in the main method in the GeometryDemo class which will call these methods. The comments indicate where to place the method calls.

**Post Lab**: No report for this lab.