Lab 2- Developing programs in C

Due Date: Friday September 30, 2016 at 11.59pm

For each of the following programs make:

- Have the appropriate variable declarations
- Name your variables following our naming conventions
- Format your program properly

1. Develop a c program to calculate 3/ 2:

   3 divided by 2 is ? // The output should look exactly like this

   What do you think the answer will be? ____

   What was the result? ___. Why? _____

2. Repeat the second question but declare the variables as floating point values.

   What result did you get? ____ Why? _____

3. Write a program to calculate the remainder when you divide 9 by 2.

   Print the result as follows:

   The remainder of 9 divided by 2 is .....

   Use the % (modulus) operator to calculate the remainder. The answer should be 1.

4. You can calculate one number raised to the power of another, such as x^y using the function ans = pow(x, y). To use this function you need to use another header file, math.h.

   Calculate 2^3 _____

   Calculate 1.3^2 _____

5. You can calculate the squre root of a number using the function call Z = sqrt(x). The sqrt() function is also defined in the math.h header file.

   Calculate and print the square root of 9 and 15. _____ _____

6. The area of a circle is given by Pi R^2

Calculate the area of a circle with a radius of 1.1

Set Pi to be equal to 3.14159. The area is _____

7. The volume of a sphere is given by the equation 4/3 Pi R^3 .

Calculate the volume of a sphere with a radius of 2.2

Print the result to two decimal places. _____

8. The force between two objects (such as planets for example) is given by:

$$F = \frac{Gm_1m_2}{R^2}$$

Calculate the gravitational attractive force between the earth and the moon given that:

m1 - mass of the earth m1 is 5.9742 x 10^{24} kg
m2 - mass of the moon m2 is 7.36 x 10^{22} kg
G - the gravitational constant is 6.67 x 10^{-11} N m^2 kg^{-2}
R - the distance between the two bodies is 385,000 km

Use appropriate variable declarations to calculate the force.

A value such as 7.36 x 10^{22} is entered as float x = 7.36E22

To print a value in the form of 123E+22 with three decimal places, use the format specifier %.3E.

Print the value of the force to two decimal places. _____

Submission Guidelines:

- Submit the .c files for all the questions as a zipped folder