Warm Up Exercises Week 3

1. Finish the Warmup exercises for week 2 before commencing the exercises below

2. Write a program that will compute the area of a trapezium from the call to a function TrapArea(double a, double b, double h), where the area of trapezium, A is given by A=(a+b)*h/2. The values of a, b and h should be entered by the user at runtime.

3. Write a program with a function that computes the curved surface area, S of a cylinder given $S = 2*\pi*r*h + 2*\pi*r^2$ with r and h entered by the user.
Take $\pi = 3.141592$ declared as a constant or calculated using pi=4*atan(1), you will need to #include<cmath>

4.Write a program that makes a call to a function which determines whether the three doubles entered could form a right-angled triangle. You can use Pythagoras' Theorem (or the cosine rule). The values a, b and c (i.e. the sides of the triangle) are entered at runtime by the user. A display should be given stating whether the triangle is or is not right angled.
Extend your program with a function to determine whether

a) the triangle is right angled
b) the triangle is right angled and isosceles (two sides equal)
c) equilateral (all sides equal)
d) scalene (all sides different)

you will need nested if statements.

Extra Only for those mathematically minded: write a function to determine whether the sides of two triangles entered constitute similar triangles.

5. Write a program with the following signature
void Displaymenu(char in) (i.e. prototype definition).

The function is called from within main(). It accepts a character as input. The char represents a sport, r (or R) for rugby, f (or F) for football or t (or T) for tennis. If the user enters r (or R) then the program will display on the screen "I prefer rugby over football and tennis". If t (or T) is entered then the display is "I prefer tennis over football and rugby" and so on. Write a default if statement that takes care of the case when incorrect input is supplied by the user i.e., they do not enter a t, r or f (or in uppercase).

6. Write a function called Area(char f)
which calculates the area of a square or circle or trapezium depending on the value of the char f (standing for figure).
If f is a c (or C) then the area of a circle is returned. Declare a local variable r to hold the radius.

If a t is entered (or T) then return the area of a trapezium, again declare local variables a,b and h inside the function.
If an s (or S) is entered then the area of a square is returned.