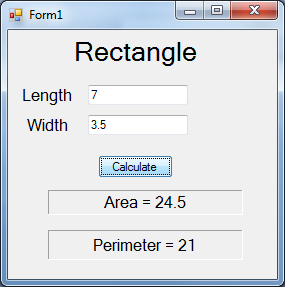
**Computer Programming - Shapes Assignment**

In this assignment, you are going to create 5 different programs, each of which requires you to use different formulae to calculate various values for each shape type. All variables used should be declared as *Double*, which will give us the ability to use floating point values (numbers with decimals).

\*In all formulas, we want to have the output rounded off to three decimal places before being outputted.

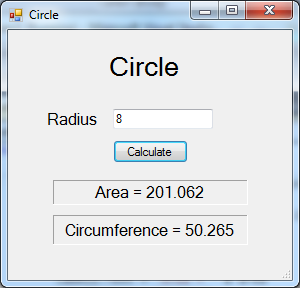


**Program # 1 - Rectangle** - 6 Points

L is the length of rectangle and W is the width.

Perimeter = 2W +2L

Area = L \* W



**Program # 2 - Circle** - 6 Points

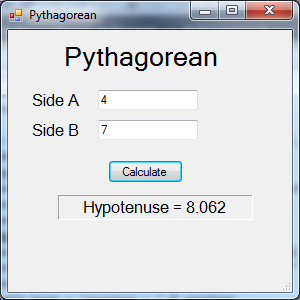
r is the radius of the circle

Circumference = 2 r

Area of Circle =

**Program # 3 - Pythagorean** - 10 Points

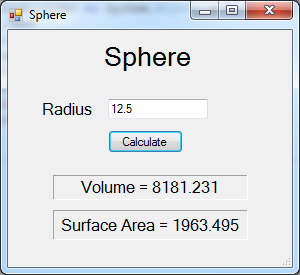
a2 + b2 = c2

where *a* and *b* are the two shorter sides

of a right triangle and c is the hypotenuse.

**Program # 4 - Sphere** - 8 Points

r is the radius of the sphere

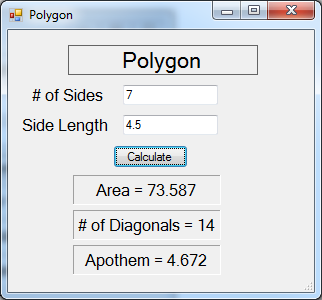
Volume of Sphere = πr3

Surface Area of Sphere = 4πr2

**Program # 5 - Polygon** - 15 Points

s is the side length

n is the number of sides

Area =

Number of Diagonals =

a=\frac{1}{2}s\tan\!\left(\frac{\pi(n-2)}{2n}\right).

Apothem =