```cpp
//
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// C/C++ Programming III : Intermediate Programming with Objects
// 151116  Raymond L. Mitchell III
// Complex.cpp
// Win10
// Visual C++ 19.0
//
// File contains the member functions for Circle, Square, Sphere and Cube class
//

#include <iostream>
#include "Shape.h"

using std::cout;

const double  PI = 3.14159265358979238462;

using ShaunChemplavil::Shape;
using ShaunChemplavil::TwoDimensionalShape;
using ShaunChemplavil::ThreeDimensionalShape;

using ShaunChemplavil::Circle;
using ShaunChemplavil::Square;
using ShaunChemplavil::Sphere;
using ShaunChemplavil::Cube;

   // Default Constructor
   Circle::Circle(double radius)
      : radius(radius) {}

    double Circle::getArea() const
   {
      return (radius * radius * PI);
   }

    void Circle::display() const
   {
      cout << "Circle with radius " << radius << " has area " << getArea() <<"\n";
   }

    // Default Constructor
    Square::Square(double lengthOfSide)
       : lengthOfSide(lengthOfSide) {}

    double Square::getArea() const
    {
       return (lengthOfSide * lengthOfSide);
    }

    void Square::display() const
```

```
53      {
54         cout << "Square with length of side " << lengthOfSide
55            << " has area " << getArea() << "\n";
56      }
57
58
59      Sphere::Sphere(double radius)
60         : radius(radius) {}
61
62      double Sphere::getSurfaceArea() const
63      {
64         return (4.0 * PI * radius * radius);
65      }
66
67
68      double Sphere::getVolume() const
69      {
70         return (getSurfaceArea() *radius/3.0);
71      }
72
73      void Sphere::display() const
74      {
75         cout << "Sphere with radius " << radius<< " has area "
76            << getSurfaceArea() << " and volume " << getVolume() <<"\n";
77      }
78
79      // Default Constructor
80      Cube::Cube(double lengthOfSide)
81         : lengthOfSide(lengthOfSide) {}
82
83      double Cube::getSurfaceArea() const
84      {
85         return (lengthOfSide * lengthOfSide*6.0);
86      }
87
88      double Cube::getVolume() const
89      {
90         return (lengthOfSide * lengthOfSide * lengthOfSide);
91      }
92      void Cube::display() const
93      {
94         cout << "Cube with length of side " << lengthOfSide << " has area " <<
            getSurfaceArea()
95            << " and volume " << getVolume() << "\n";
96      }
97
98
```