```
#include <iostream>
#include <cmath>
#include <iomanip>
using namespace std;

// ____________________________________________________________________________
//
// This program declares a class for a circle that will have
// member functions that set the center, find the area, find
// the circumference and display these attributes.
// The program as written does not allow the user to input data, but
// rather has the radii and center coordinates of the circles
// (spheres in the program) initialized at definition or set by a function.

// class declaration section     (header file)

// Michael Steele

class Circles
{
public:
        void setCenter(int x, int y);
        double findArea();
        double findCircumference();
        void printCircleStats();          // This outputs the radius and center of the circle.
        Circles(float r);                         // Constructor
        Circles();
        Circles(float r, int x, int y);
        Circles(int x, int y);
private:
        float   radius;
        int     center_x;
        int     center_y;
};

const double PI = 4.0 * atan(1);

// Client section

int main()
{
   cout << fixed;
   cout << setprecision(2);
```

```
        Circles sphere(2);
        Circles sphere2(1,0,0);
        Circles sphere3(15,16);
        //sphere.setCenter(9,10);
        sphere.printCircleStats();

        cout << "The area of the circle is " << sphere.findArea() << endl;
        cout << "The circumference of the circle is "
                << sphere.findCircumference() << endl<< endl;
    sphere2.printCircleStats();

    cout << "The area of the circle is " << sphere2.findArea() << endl;
        cout << "The circumference of the circle is "
                << sphere2.findCircumference() << endl<< endl;
    sphere3.printCircleStats();

    cout << "The area of the circle is " << sphere3.findArea() << endl;
        cout << "The circumference of the circle is "
                << sphere3.findCircumference() << endl<< endl;

        return 0;
}



Circles::Circles()
{
        radius = 1;
        setCenter(0,0);

}


Circles::Circles(float r)
{
    radius = r;
    setCenter(0,0);
}

Circles::Circles(float r, int x, int y)
{
    radius = r;
    setCenter(x,y);
```

```
}

Circles::Circles(int x, int y)
{
   radius = 1;
   setCenter(x,y);
}


double Circles::findArea()
{
   return PI * pow(radius,2);
}


double Circles::findCircumference()
{
   return 2 * PI * radius;
}

void Circles::printCircleStats()


{
        cout << "The radius of the circle is " << radius << endl;
        cout << "The center of the circle is (" << center_x
                << "," << center_y << ")" << endl;
}

void Circles::setCenter(int x, int y)

{
        center_x = x;
        center_y = y;
}
```