```cpp
 1   /*
 2   --------------------------------------------------------------------------------
 3   Laboratoire : labo_01
 4   Fichier     : circle.cpp
 5   Auteur(s)   : Emmanuelle Comte et David Gallay
 6   Date        : 24.02.2020
 7
 8   But         : Function definition for header circle.h
 9   Remarque(s) :
10   Compilateur : MinGW-g++ 6.3.0 and g++ 7.4.0
11   --------------------------------------------------------------------------------*/
12
13   #define _USE_MATH_DEFINES // M_PI
14
15   #include <cmath>
16   #include "circle.h"
17
18   using namespace std;
19
20
21   Circle::Circle(double radius, const Color& color): mRadius(radius), mColor(color) {
22
23   }
24
25   Circle::Circle(const Color& color): Circle() {
26       setColor(color);
27   }
28
29   Circle::Circle(Color::Code code): Circle(Color(code)) {
30
31   }
32
33   Circle& Circle::setRadius(double radius) {
34       mRadius = radius;
35       return *this;
36   }
37
38   Circle& Circle::setColor(const Color& color) {
39       mColor = color;
40       return *this;
41   }
42
43   Circle& Circle::setColor(Color::Code color) {
44       setColor(Color(color));
45       return *this;
46   }
47
48   double Circle::getRadius() const {
49       return mRadius;
50   }
51
52   double Circle::getSurface() const {
53       return M_PI * pow(mRadius, 2);
54   }
55
56   Color Circle::getColor() const {
57       return mColor;
58   }
59
60   ostream& Circle::display(ostream& stream) const {
61       return stream << "Circle Radius : " << mRadius
62                     << ", Color  : "      << mColor  << endl;
63   }
64
65   ostream& operator<<(ostream& stream, const Circle& circle) {
66       return circle.display(stream);
67   }
68
```