

Circle.java

```
public class Circle {
    private double radius;
    private String color;

    // 1st constructor, which sets both radius and color to
    // default
    public Circle() {
        radius = 1.0;
        color = "red";
    }

    // 2nd constructor with given radius, but color default
    public Circle(double r) {
        radius = r;
        color = "red";
    }

    // A public method for retrieving the radius
    public double getRadius() {
        return radius;
    }

    // A public method for computing the area of circle
    public double getArea() {
        return radius*radius*Math.PI;
    }
}
```

Cylinder.java

```
-----
// Define Cylinder class, which is a subclass of Circle
public class Cylinder extends Circle {
    private double height; // Private member variable

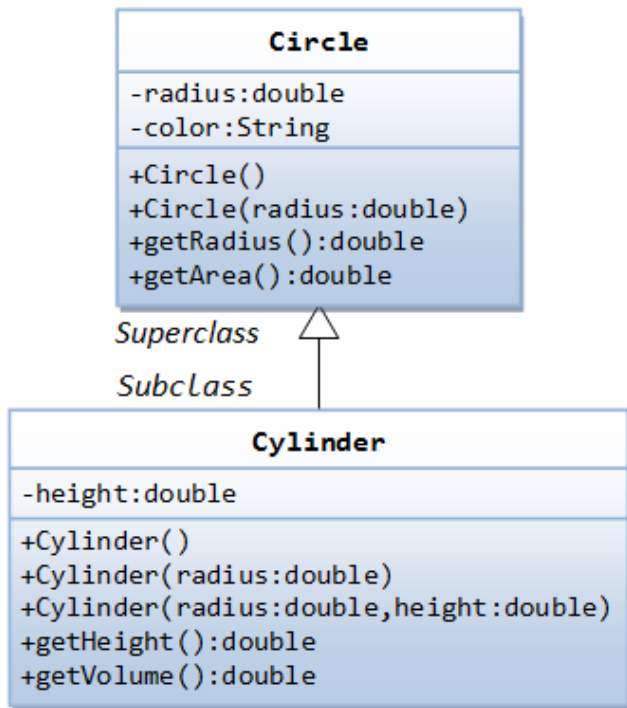
    public Cylinder() { // constructor 1
        super(); // invoke superclass' constructor Circle()
        height = 1.0;
    }

    public Cylinder(double radius, double height) { // Constructor 2
        super(radius); // invoke superclass' constructor Circle(radius)
        this.height = height;
    }

    public double getHeight() {
        return height;
    }

    public void setHeight(double height) {
        this.height = height;
    }

    public double getVolume() {
        return getArea()*height; // Use Circle's getArea()
    }
}
```



TestCylinder.java

// A test driver program for Cylinder class

```
public class TestCylinder {
    public static void main(String[] args) {
        Cylinder cy1 = new Cylinder();    // Use constructor 1
        System.out.println("Radius is " + cy1.getRadius()
            + " Height is " + cy1.getHeight()
            + " Color is " + cy1.getColor()
            + " Base area is " + cy1.getArea()
            + " Volume is " + cy1.getVolume());

        Cylinder cy2 = new Cylinder(5.0, 2.0); // Use constructor 2
        System.out.println("Radius is " + cy2.getRadius()
            + " Height is " + cy2.getHeight()
            + " Color is " + cy2.getColor()
            + " Base area is " + cy2.getArea()
            + " Volume is " + cy2.getVolume());
    }
}
```