

Oval.java

```
1 import java.lang.Object;
5
6 public class Oval extends Shape{
7
8     public Oval()
9     {
10         this(0,0,10,10,Color.black);
11     }
12
13     public Oval(int x, int y)
14     {
15         this(x,y,10,10,Color.black);
16     }
17
18     public Oval(int x, int y, int width, int height)
19     {
20         this(x,y,width,height,Color.black);
21     }
22
23     public Oval(int x, int y, int width, int height, Color color)
24     {
25         super(x,y,color);
26         this.width = width;
27         this.height = height;
28     }
29
30     public double getArea()
31     {
32         return (double)width/2 * (double)height/2 * Math.PI;
33     }
34
35     public double getPerimeter()
36     {
37         return Math.PI* Math.sqrt(2*(0.5*width*width+0.5*height*height));
38     }
39
40     public int getWidth()
41     {
42         return width;
43     }
44
45     public int getHeight()
46     {
47         return height;
48     }
49
50     public boolean doOverlap(Shape s2)
51     {
52         return (this.getX() == s2.getX() && this.getY() == s2.getY());
53     }
54
55     public BoundingBox getBoundingBox()
56     {
57         double minX = this.getX()-width/2;
58         double minY = this.getY()-height/2;
59
60         return new BoundingBox(minX, minY, width, height);
```

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```
61     }
62
63     public String toString()
64     {
65         return "(" + width + ", " + height + ", " + getPerimeter() + ", " + getArea() + ")";
66     }
67
68     public void draw(Graphics g)
69     {
70         g.setColor(this.getColor());
71         g.fillOval((int)(this.getX()-width/2), (int)(this.getY()-height/2), width, height);
72     }
73
74     private int width;
75     private int height;
76 }
77
```