

Code:

```
1  import java.util.Scanner;
2  import static java.lang.Math.*;
3  class Shape
4  {
5      public String shape;
6      Shape()
7      {
8          shape = null;
9      }
10     Shape(String shape)
11     {
12         this.shape = shape.toLowerCase();
13     }
14     double area(double dimension1, double dimension2, double dimension3)
15     {
16         if(shape.equals("triangle"))
17         {
18             double s = (dimension1 + dimension2 + dimension3) / 2;
19             double area = sqrt(s * (s - dimension1) * (s - dimension2) * (s - dimension3));
20             return area;
21         }
22         System.out.println("Cannot calculate Area for such Shape");
23         return 0;
24     }
25     double area(double dimension1)
26     {
27         double result;
28         switch(shape)
29         {
30             case "circle":
31                 result = PI * dimension1 * dimension1;
32                 break;
33             case "square":
34                 result = dimension1 * dimension1;
35                 break;
36             case "triangle":
37                 result = area(dimension1, dimension1, dimension1);
38                 break;
39             case "rectangle":
40                 result = area(dimension1, dimension1);
41             default:
42                 System.out.println("Your shape isn't present in the list of shapes");
43                 result = 0;
44         }
45         return result;
```

```

46     }
47     double area(double dimension1, double dimension2)
48     {
49         return dimension1 * dimension2;
50     }
51 }
52 class Overloading
53 {
54     public static void main(String args[])
55     {
56         Shape shape1 = new Shape("triangle");
57         Shape shape2 = new Shape("square");
58         System.out.println("Area of Triangle with side 10, 11 and 10: " + shape1.area(10,
59         System.out.println("Area of Square with side 10: " + shape2.area(10));
60         shape2.shape = "circle";
61         System.out.println("Area of Circle with side 10: " + shape2.area(10));
62         shape2.shape = "triangle";
63         System.out.println("Area of Equilateral Triangle with side 10: " +shape2.area(10))
64     }
65 }

```

Output:

```

Area of Triangle with side 10, 11 and 10: 45.934055993347684
Area of Square with side 10: 100.0
Area of Circle with side 10: 314.1592653589793
Area of Equilateral Triangle with side 10: 43.30127018922193

```