Answer on Question#54253, Programming / Java | JSP | JSF

//////////////////

TestShape.java

```
public class TestShape {
   public static void main(String[] args) {

      // Rectangle test
      double width = 5.00, length = 7.00;
      Shape rectangle = new Rectangle(width, length);
      System.out.printf("\nRectangle width %.2f %.2f: ",width,length);
      System.out.printf("\nResulting area: %.2f: ", rectangle.area() );


     //Square test
      double side = 5.00;
      Shape square = new Square(side);
      System.out.printf("\nSquare side %.2f: ", side);
      System.out.printf("\nResulting area: %.2f: ", square.area() );


      // Circle test
      double radius = 5.00;
      Shape circle = new Circle(radius);
      System.out.printf("\nCircle radius: %.2f ", radius);
      System.out.printf("\nResulting Area: %.2f ", circle.area());



      // Triangle test
      double base = 5.00, height = 4.00;
      Shape triangle = new Triangle(base,height);
      System.out.printf("\nTriangle base and height %.2f %.2f: ",base,height);
      System.out.printf("\nResulting area: %.2f: ", triangle.area() );
```

```
    }
}
////////////////////
Shape.java
public abstract class Shape {
    public abstract double area();
}
////////////////////
Square.java
public class Square extends Shape {
    private final double side; //sides

    public Square() {
        this(1);
    }
    public Square(double side) {
        this.side = side;
    }

    @Override
    public double area() {
        // A = l * l
        return side*side;
    }
}
////////////////////
Circle.java
public class Circle extends Shape {
    private final double radius;
    final double pi = Math.PI;

    public Circle() {
```

```
        this(1);
    }
    public Circle(double radius) {
        this.radius = radius;
    }

    @Override
    public double area() {
        return pi * Math.pow(radius, 2);
    }



}
////////////////////
Triangle.java
public class Triangle extends Shape {
    private final double base, height;

    public Triangle() {
        this(1,1);
    }
    public Triangle(double base, double height) {
        this.base = base;
        this.height = height;
    }

    @Override
    public double area() {
        double s = 0.5*base*height;
        return s;
    }

}
////////////////////
```

Rectangle.java

```
public class Rectangle extends Shape {
   private final double width, length; //sides

   public Rectangle() {
      this(1,1);
   }
   public Rectangle(double width, double length) {
      this.width = width;
      this.length = length;
   }

   @Override
   public double area() {
      // A = w * l
      return width * length;
   }
}
```

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