

- + Develop a Java program to create an abstract class named shape that contains two integers and an empty method named printArea(). Provide three classes named rectangle, Triangle and Circle such that each one of the classes extends the class shape. Each one of the classes contain only the method printArea() that prints the area of the given shape.

```
import java.util.Scanner;
```

```
abstract class shape {  
    protected int side1;  
    protected int side2;
```

```
    public shape(int side1, int side2) {  
        this.side1 = side1;  
        this.side2 = side2;  
    }
```

```
    public abstract void printArea();  
}
```


Page _____

```
class Rectangle extends shape {  
    public Rectangle(int length, int width)  
        super(length, width);  
}
```

```
    public void printArea() {  
        int area = side1 * side2;  
        System.out.println("Rectangle Area: " + area);  
    }  
}
```

```
class Triangle extends Shape {  
    public Triangle(int base, int height) {  
        super(base, height);  
    }  
}
```

```
    public void printArea() {  
        double area = 0.5 * side1 * side2;  
        System.out.println("Triangle Area: " + area);  
    }  
}
```

```
class Circle extends shape {  
    public Circle(int radius) {  
        super(radius, 0);  
    }  
}
```

```
    public void printArea() {  
        double area = Math.PI * side1 * side1;  
        System.out.println("Circle Area: " + area);  
    }  
}
```


3

3

```
public class Area {  
    public static void main (String [] args) {  
        Scanner scanner = new Scanner (System.in);
```

```
        System.out.println ("Enter length and width  
                             of rectangle :");
```

```
        int rectlength = scanner.nextInt();
```

```
        int rectwidth = scanner.nextInt();
```

```
        Rectangle rectangle = new Rectangle (rectlength,  
                                              rectwidth);
```

```
        rectangle.printArea();
```

```
        System.out.println ("Enter base and Height for  
                             Triangle :");
```

```
        int tribase = scanner.nextInt();
```

```
        int triheight = scanner.nextInt();
```

```
        Triangle Triangle = new Triangle (tribase, triheight);
```

```
        Triangle.printArea();
```

```
        System.out.println ("Enter radius for circle :");
```

```
        int circle Radius = scanner.nextInt();
```

```
        Circle circle = new Circle (circle Radius);
```

```
        circle.printArea();
```


scanner.close();

}

}

Output:-

Enter length and width for rectangle:

7

4

Rectangle Area = 28.

Enter base and height for Triangle:

4

8

Triangle Area = 16.0.

Enter radius for circle:

9

Circle Area = 254.4690049077323.

2/1/24