LAB: 4 > 6/11/2020.

Q1 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 contains only the method printArea() that prints the area of the given shape.

```
import java.util.Scanner;

abstract class Shape {
    int a;
    int b;
  Shape (int a, int b) {
      this.a=a;
      this.b=b;
  }

    abstract double printArea();
}

class Rectangle extends Shape {
    Rectangle (int a, int b) {
        super(a,b);
  }
  double printArea() {
        return a*b;
  }
```

```
class Triangle extends shape {
    Triangle (int a, int b) {
        super (a,b);
    }
    double printArea () {
        return a*b/2;
    }
}

class Circle extends Shape {
    Circle (int a) {
        super (a);
    }
    double printArea () {
        return Math.PI *a* a;
    }
}

public class AbstractShape {
    public static void main (String args[]){
        Scanner input = new Scanner (System.in);

System.out.println ("Enter the Dim of Rect");
    Rectangle P = new Rectangle (input.nextInt (),
                    input.nextInt ());

System.out.println ("Enter the Dim of Triangle");
    Triangle q = new Triangle (input.nextInt();
                    input.nextInt());

System.out.println ("Enter the Dim of Circle");
    Circle r = new Circle (input.nextInt());
```

```
Shape figref;
figref = p;
    System.out.println("Area of Rectangle"
                        + p.printArea());
figref = q;
    System.out.println("Area of Triangle"
                        + q.printArea());

figref = r;
    System.out.println("Area of Circle"
                        + r.printArea());
  }
}
```

O/P:

```
Enter the Dim of Rectangle: 4 6
Enter the Dim of Triangle : 3 8
Enter the Dim of Circle   : 4

Area of Rectange  24.0
Area of Triangle  12.0
Area of Circle    50.265 4825
```