Program

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 containonly 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;
   }
   Shape(int a){
      this.a=a;
   }

   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[]){
      Rectangle p=new Rectangle(5,6);
      Triangle q=new Triangle(4,8);
      Circle r=new Circle(3);
   */
   public class AbstractShape{
   public static void main(String args[]){
       Scanner input=new Scanner(System.in);
```

```
        System.out.println("Enter the Dimensions of Rectangle");
        Rectangle p=new Rectangle(input.nextInt(),input.nextInt());
        System.out.println("Enter the Dimensions of Triangle");
        Triangle q=new Triangle(input.nextInt(),input.nextInt());
        System.out.println("Enter the Dimensions of Circle");
        Circle r=new Circle(input.nextInt());


    Shape figref;
    figref=p;
    System.out.println("Area of Rectangle is: "+p.printArea());
    figref=q;
    System.out.println("Area of Triangle is: "+q.printArea());
    figref=r;
    System.out.println("Area of Circle is: "+r.printArea());


    }
}
```

Result

CPU Time: 0.27 sec(s), Memory: 37136 kilobyte(s) compiled and executed in 0.936 sec(s)

```
Enter the Dimensions of Rectangle
Enter the Dimensions of Triangle
Enter the Dimensions of Circle
Area of Rectangle is: 24.0
Area of Triangle is: 12.0
Area of Circle is: 50.26548245743669
```