1) Develop a java program to create an abstract class named Shape that contains two integers & an empty method named print Area (). provide three classes named Rectangle, Triangle & Circle such that each one of the classes extends the class Shape. Each one of the classes contain the method print Area () that prints the area of the given Shape.

```java
package sample;
abstract class shape {
    protected int dimension1;
    protected int dimension2;
    public Shape(int dimension1, int dimension2) {
        this.dimension1 = dimension1;
        this.dimension2 = dimension2; }
    public abstract void printArea(); }


class Rectangle extends shape {
    public Rectangle(int length, int width) {
        Super(length, width); }
    public void printArea() {
        int area = dimension1 * dimension2;
        System.out.println("Area of Rectangle:" + area); }}


class Triangle extends shape {
    public Triangle(int base, int height) {
        Super(base, height); }
    public void printArea() {
        double area = 0.5 * dimension1 * dimension2;
        S.O.P ("quote Area of triangle:" + area); }}


class Circle extends shape {
    public Circle(int radius) {
```

```
super (radius, 0); }
public void print Area () {
double area = Math.PI * dimenseon1 * dimenseon1;
S.O.P ("quota area of Circle:" + area);


public class mainshape { psvm (String args[]) {
Rectangle rectangle = new Rectangle (4,5);
rectangle. print Area ();
Triangle triangle = new Triangle (3, 6);
triangle. print Area ();
Circle Circle = new Circle (7);
Circle. print Area (); } }
```

Output:

Area of Rectangle : 20
Area of Triangle : 9.0
Area of Circle :153.93804002 5

```java
import java.util.Scanner;

abstract class Shape{
    int a,b;
    Shape(int a,int b){
        this.a=a;
        this.b=b;
    }
    public abstract void printArea();
}
    class Rectangle extends Shape{
        Rectangle(int length,int breadth){
            super(length,breadth);
        }
        public void printArea(){
            System.out.println("Area of Rectangle = "+(a*b));
        }
    }
    class Triangle extends Shape{
        Triangle(int base,int height){
            super(base,height);
        }
        public void printArea(){
            System.out.println("Area of Triangle = "+(0.5*a*b));
        }
    }
    class Circle extends Shape{
        Circle(int radius){
            super(radius,0);
        }
        public void printArea(){
            System.out.println("Area of Circle = "+(Math.PI*a*a));
        }
    }



public class Area {
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter length and breadth of Rectangle");
        int length=sc.nextInt();
        int breadth=sc.nextInt();
        System.out.println("Enter base and height of Triangle");
        int base=sc.nextInt();
```

```
        int height=sc.nextInt();
        System.out.println("Enter radiius of a Circle");
        int radiius=sc.nextInt();

        Rectangle rectangle=new Rectangle(length, breadth);
        Triangle triangle=new Triangle(base, height);
        Circle circle=new Circle(radiius);

        rectangle.printArea();
        triangle.printArea();
        circle.printArea();

    }
}
```

OUTPUT :

```
Enter length and breadth of Rectangle
10 20
Enter base and height of Triangle
2 5
Enter radiius of a Circle
8
Area of Rectangle = 200
Area of Triangle = 5.0
Area of Circle = 201.06192982974676
```