Program 4

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 {

    abstract void printArea();

}

class Rect extends Shape {

    private int length;

    private int breadth;

    public Rect(int length, int breadth) {

        this.length = length;

        this.breadth = breadth;

    }

    @Override

    void printArea() {

        int area = length \* breadth;

        System.out.println("Area of the rectangle is " + area);

    }

}

class Tri extends Shape {

    private int base;

    private int height;

    public Tri(int base, int height) {

        this.base = base;

        this.height = height;

    }

    @Override

    void printArea() {

        double area = 0.5 \* base \* height;

        System.out.println("Area of the triangle is " + area);

    }

}

class Circle extends Shape {

    private int radius;

    public Circle(int radius) {

        this.radius = radius;

    }

    @Override

    void printArea() {

        double area = 3.14 \* radius \* radius;

        System.out.println("Area of the circle is " + area);

    }

}

public class Area {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.print("Shape: Rectangle\nEnter length: ");

        int length = scanner.nextInt();

        System.out.print("Enter breadth: ");

        int breadth = scanner.nextInt();

        System.out.print("Shape: Triangle\nEnter base: ");

        int base = scanner.nextInt();

        System.out.print("Enter height: ");

        int height = scanner.nextInt();

        System.out.print("Shape: Circle\nEnter radius: ");

        int radius = scanner.nextInt();

        Rect rectangle = new Rect(length, breadth);

        Tri triangle = new Tri(base, height);

        Circle circle = new Circle(radius);

        System.out.println();

        rectangle.printArea();

        triangle.printArea();

        circle.printArea();

        scanner.close();

    }

}

OUTPUT:

