# Exercise 02:

// Shape interface

interface Shape {

double calculateArea();

double calculatePerimeter();

}

// Circle class

class Circle implements Shape {

private double ra;

public Circle(double ra) {

this.ra = ra;

}

// Getter and setter for radius

public double getRadius() {

return ra;

}

public void setRadius(double ra) {

this.ra = ra;

}

public double calculateArea() {

return Math.PI \* ra \* ra;

}

public double calculatePerimeter() {

return 2 \* Math.PI \* ra;

}}

// Rectangle class

class Rectangle implements Shape {

private double length;

private double width;

public Rectangle(double length, double width) {

this.length = length;

this.width = width;

}

// Getter and Setter for length

public double getLength() {

return length;

}

public void setLength(double length) {

this.length = length;

}

// Getter and Setter for width

public double getWidth() {

return width;

}

public void setWidth(double width) {

this.width = width;

}

public double calculateArea() {

return length \* width;}

public double calculatePerimeter() {

return 2 \* (length + width);

}}

// Triangle class

class Triangle implements Shape {

private double side1;

private double side2;

private double side3;

public Triangle(double side1, double side2, double side3) {

this.side1 = side1;

this.side2 = side2;

this.side3 = side3;

}

// Getter and Setter for side1

public double getSide1() {

return side1;

}

public void setSide1(double side1) {

this.side1 = side1;

}

// Getter and Setter for side2

public double getSide2() {

return side2;

}

public void setSide2(double side2) {

this.side2 = side2;

}

// Getter and Setter for side3

public double getSide3() {

return side3;

}

public void setSide3(double side3) {

this.side3 = side3;

}

public double calculateArea() {

double semiPerimeter = (side1 + side2 + side3) / 2;

return Math.sqrt(semiPerimeter \* (semiPerimeter - side1) \* (semiPerimeter - side2) \* (semiPerimeter - side3));

}

public double calculatePerimeter() {

return side1 + side2 + side3;

}

}

public class Main {

public static void main(String[] args) {

Circle circle = new Circle(3.0);

System.out.println("Circle Area: " + circle.calculateArea());

System.out.println("Circle Perimeter: " + circle.calculatePerimeter());

Rectangle rectangle = new Rectangle(2.0, 5.0);

System.out.println("Rectangle Area: " + rectangle.calculateArea());

System.out.println("Rectangle Perimeter: " + rectangle.calculatePerimeter());

Triangle triangle1 = new Triangle(2.0, 5.0, 6.0);

System.out.println("Triangle 1 Area: " + triangle1.calculateArea());

System.out.println("Triangle 1 Perimeter: " + triangle1.calculatePerimeter());

/\* Triangle triangle = new Triangle(2.0); // same side side = 2

System.out.println("Triangle Area: " + triangle.calculateArea());

System.out.println("Triangle Perimeter: " + triangle.calculatePerimeter());\*/

}

}