

Enon Java Training

Worksheet 2

Instructions: Ask the user to enter values for three geometric shapes and then calculate and print the area of each shape.

1. Open the program you created last time to calculate shape area and modify it as follows:
2. Follow your instructor to do the following
 1. Add 3 additional classes called **Square**, **Circle**, and **Triangle**
 1. Right click on the package in the Project Explorer in Netbeans to view the pop-up menu
 1. It will probably be listed as *<default package>*
 2. Click on *New → Java Class...*
 3. Enter **Square** for class name. Leave everything else as default
 4. Click on **Finish**
 5. Repeat for the *Circle* and *Triangle* classes
 2. For your Square class, add one **double** property for its side

```
private double side;
```
 3. For the Circle class, add one **integer** property for its diameter
 4. For the Triangle, add two properties: one double for the triangle height, and another for the base
 5. Create setters and getters for each property in each class – NetBeans can do this for you automatically by clicking on *Source → Insert Code → Getters and Setters*
 6. Create a method called **getArea()** that returns a double for each of the classes. They should each do the correct area calculation for the respective shape.

NOTE: Java provides a constant to get the value of PI called **Math.PI**. Use it in the calculation below. For example:

```
double area = Math.PI * radius * radius;
```

7. Create a method called **getRadius()** that returns a double in the Circle class that returns the radius of the circle.
3. In your main class, do the following:

1. **Square:**

1. Prompt the user to enter one side of the square using a **Scanner** object

```
int side = keyboard.nextInt();
```

2. Create a new Square object

```
Square mySquare = new Square();
```

3. Use the entered information to set the side of the newly created Square object

```
mySquare.setSide(side);
```

4. Print the area of the square along with a message, such as:

The area of the square with side **X** is **Y**

Where X is the value the user entered. (Note that the printed message should contain the value the user originally entered)

```
System.out.println("The area of the square with side " + side + " is " +  
mySquare.getArea());
```

2. **Isosceles triangle:**

1. Prompt the user to enter the height of the triangle
2. Create a new Triangle object, and set its values using the entered information in a similar fashion as you did for the square
3. Print the area of the triangle along with a message, such as:

The area of the triangle with base **X** and height **Y** is **Z**

Where X and Y are the values the user entered. (Note that the printed message should contain the values the user originally entered)

3. Circle:

1. Prompt the user to enter the circle's **Diameter** using **JOptionPane** (Optionally they can continue to use the scanner)

```
int diameter = Integer.parseInt(JOptionPane.showInputDialog("Enter value"));
```

2. Create a new Circle object and set its diameter to the information entered by the user
3. Calculate the **radius** and the **area** of the circle and print the following message using JOptionPane's message dialog:

The radius of the circle with diameter **X** is **Y**

The area of the circle with diameter **X** is **Z**

Where X is the value the user entered. (Note that the printed message should contain the value the user originally entered)

4. **Have the TA check your work.**