

PSG COLLEGE OF TECHNOLOGY, COIMBATORE
DEPARTMENT OF APPLIED MATHEMATICS AND COMPUTATIONAL SCIENCES
15XT56 – JAVA PROGRAMMING LAB
PROBLEM SHEET II - CLASSES AND OBJECTS

1. Create a class called Square with following private field

`int side`

and following public constructor

`Square(int side)`

and following public methods

`void setSide(int side), int getSide(), int calculateArea(),
int calculateCircumference()`

Create an object for Square class in your main method and calculate area, circumference and print those values.

2. Create a class called Circle with following private field

`int radius`

and following public constructor

`Circle(int radius)`

and following public methods

`void setRadius(int radius), int getRadius(),
double calculateArea(), double calculateCircumference()`

Create an object for Circle class in your main method and calculate area, circumference and print those values.

3. Create a class called Rectangle with following private fields

`int length, int width`

and following public constructor

`Rectangle(int length, int width)`

and following public methods

`void setLength(int length), void setWidth(int width),
int getLength(), int getWidth(), int calculateArea(),
int calculateCircumference()`

Create an object for Rectangle class in your main method and calculate area, circumference and print those values.

4. Create a class called Triangle with following private fields

`int side1, int side2, int side3`

and following public constructor

`Triangle(int side1, int side2, int side3)`

and following public methods

`void setSide1(int side1), void setSide2(int side2),
void setSide3(int side3), int getSide1(),int getSide2(),
int getSide3(), double calculateArea(),`

```
double calculateCircumference()
```

Create an object for Triangle class in your main method and calculate area, circumference and print those values.

5. Create a class named QuadraticEquation with following private data members

```
int a – coefficient of x2
```

```
int b – coefficient of x
```

```
int c – constant
```

and following constructor

```
QuadraticEquation(int a, int b, int c)
```

and following public methods

```
int getA(), int getB(), int getC(), void setA(int a),
```

```
void setB(int b), void setC(int c), double getRoot1(),
```

```
double getRoot2()
```

Create an object for QuadraticEquation class in your main method and find roots of this quadratic equation.

6. Create a class called Matrix with following private fields

```
int elements[][]
```

and following public constructor

```
Matrix( int rows, int columns)
```

and following public methods

```
void setElement( int row, int column, int element)
```

```
int getElement( int row, int column)
```

```
Matrix add(Matrix m)
```

```
Matrix subtract(Matrix m)
```

```
Matrix multiply(Matrix m)
```

Create two objects for Matrix class in your main method and perform addition, subtraction and multiplication of these two objects.