**SECTION : 4**

**Problem 1: Writing methods**

**Overview**

**In this practice, you will write methods that return values for the following scenarios**

1. **Converts given temperature in Fahrenheit to Celsius.**

**Formula:** C=5/9\*(F-32)

public class TemperatureConverter

{

public static double fahrenheitToCelsius(double fahrenheit)

{

return (5.0 / 9) \* (fahrenheit - 32);

}

public static void main(String[] args)

{

double fahrenheit = 98.6;

double celsius = fahrenheitToCelsius(fahrenheit);

System.out.println("Temperature in Celsius: " + celsius);

}

}

1. **Computes the hypotenuse length of a triangle given its side lengths.**

public class Triangle

{

public static double computeHypotenuse(double a, double b)

{

return Math.sqrt(a \* a + b \* b);

}

public static void main(String[] args)

{

double sideA = 3.0;

double sideB = 4.0;

double hypotenuse = computeHypotenuse(sideA, sideB);

System.out.println("Hypotenuse length: " + hypotenuse);

}

}

1. **Simulate the rolling of two 6-sided dice and display their sum.**

**Task**

You must implement the following:

A) Write a java file, ComputeMethods.java and define the following three methods:  
public double fToC(double degreesF)  
public double hypotenuse(int a, int b)  
public int roll()

import java.util.Random;

public class ComputeMethods

{

public double fToC(double degreesF)

{

return (degreesF - 32) \* 5 / 9;

}

public double hypotenuse(int a, int b)

{

return Math.sqrt(a \* a + b \* b);

}

public int roll()

{

Random random = new Random();

int dice1 = random.nextInt(6) + 1;

int dice2 = random.nextInt(6) + 1;

return dice1 + dice2;

}

}

1. Write a second java file, TestClass.java and perform the following:  
   Add a main method, in the main method:  
   Create an instance of ComputeMethods and invoke the methods defined in ComputeMethods.java on this instance and  
   display their results.

public class TestClass

{

public static void main(String[] args)

{

ComputeMethods cm = new ComputeMethods();

double tempF = 100; // Example temperature in Fahrenheit

double tempC = cm.fToC(tempF);

System.out.println("Temp in celsius is " + tempC);

int sideA = 6;

int sideB = 8;

double hypotenuse = cm.hypotenuse(sideA, sideB);

System.out.println("Hypotenuse is " + hypotenuse);

int sumOfDice = cm.roll();

System.out.println("The sum of the dice values is " + sumOfDice);

}

}

**Expected Output:**

Temp in celsius is 38.00000000000001  
Hypotenuse is 10.816653826391969  
The sum of the dice values is 9  
The ComputeMethods.java and TestClass.java files are available to help you get started.

**Problem 2: Process a name**

**Overview**

In this practice, you will develop a java program that processes a name entered by the user. The program does the following:  
It reads the user's first and last name (read an entire line as a single string), then prints the last name followed by a comma and the first  
initial. (Assume that the user types a valid name.)

**Task**

You must implement the following:  
1. Have the user enter a name  
2. Extract the first and last name from the name entered by the user  
3. Use methods of String class to manipulate name as specified:  
4. Display the name to the console  
Expected Output:  
Type your name: Jenny Weaver  
Your name is: Weaver, J.  
The ProcessName.java file is available to help you get started.

import java.util.Scanner;

public class ProcessName

{

public static void main(String[] args)

{

Scanner scanner = new Scanner(System.in);

System.out.print("Type your name: ");

String fullName = scanner.nextLine();

int spaceIndex = fullName.indexOf(' ');

String firstName = fullName.substring(0, spaceIndex);

String lastName = fullName.substring(spaceIndex + 1);

char firstInitial = firstName.charAt(0);

System.out.println("Your name is: " + lastName + ", " + firstInitial + ".");

scanner.close();

}

}