Student Preparation Program for the Semester 2

Programming Tutorial

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Question 1

a),b),c),d)

```
public class IT25103818Q1 {
    public static void main(String[] args) {
        int miles = 26;
        int yards = 385;
        double kilometers;

        kilometers = (miles + yards / 1760.0) * 1.609;

        System.out.println("Distance in kilometers = " + kilometers);
    }
}
```

Question 2

```
public class IT25103818Q2 {
    public static void main(String[] args) {
        int[] A = {10, 20, 30, 40, 50};
        int[] B = {34, 67, 12, 89, 12};
        int[] C = new int[5];

        for (int i = 0; i < 5; i++) {
            C[i] = A[i] + B[i];
        }

        System.out.print("Array C: [");
        for (int i = 0; i < 5; i++) {
            System.out.print(C[i]);
            if (i < 4) {
                System.out.print(", ");
            }
        }
        System.out.println("]");
    }
}
```

Question 3

a),b),c),d),e)

```
// Class to determine even or odd numbers
public class EvenOddNumber {

    // Method to check if a number is even or odd
    // Returns true if even, false if odd
    public boolean findEvenOrOdd(int i) {
        if (i % 2 == 0) {
            return true;  // Even
        } else {
            return false; // Odd
        }
    }
}

// Demo class with main method
public class IT25103818Q3 {
    public static void main(String[] args) {
```

```
        // Create an object of EvenOddNumber
        EvenOddNumber obj = new EvenOddNumber();

        // Test numbers
        int[] numbers = {5, 12, 7, 20, 33};

        // Loop through numbers and check if even or odd
        for (int num : numbers) {
            if (obj.findEvenOrOdd(num)) {
                System.out.println(num + " is Even");
            } else {
                System.out.println(num + " is Odd");
            }
        }
    }
}
```

Question 4

```
Public class IT25103818Q4While {
    public static void main(String[] args) {

        int i = 1;
```

```
        while (i <= 5) {         // rows
            int j = 1;
            while (j <= 5) {     // columns
                System.out.print("* ");
                j++;
            }
            System.out.println(); // new line
            i++;
        }
    }
}
```

```
Public class IT25103818Q4For {
    public static void main(String[] args) {

        for (int row = 1; row <= 5; row++) {
```

```
            // spaces
            for (int space = 1; space <= 5 - row; space++) {
                System.out.print(" ");
            }

            // stars
            for (int star = 1; star <= row; star++) {
                System.out.print("* ");
            }

            System.out.println(); // new line
        }
    }
}
```

Question 5

```
public class IT25103818Q5 {

    // Calculator class
```

```
static class Calculator {

    int add(int a, int b) {
        return a + b;
    }

    int multiply(int a, int b) {
        return a * b;
    }

    int square(int a) {
        return a * a;
    }
}

// Main method
public static void main(String[] args) {

    Calculator cal = new Calculator();

    // Expression 1: (3 * 4 + 5 * 7)^2
    int result1 = cal.square(
            cal.add(
```

```
                cal.multiply(3, 4),
                cal.multiply(5, 7)
            )
        );

        // Expression 2: (4 + 7)^2 + (8 + 3)^2
        int result2 = cal.add(
            cal.square(cal.add(4, 7)),
            cal.square(cal.add(8, 3))
        );

        System.out.println("Result of Expression 1: " + result1);
        System.out.println("Result of Expression 2: " + result2);
    }
}
```