# CS 1083
Introduction to Programming I for Computer Scientists
Midterm Solutions

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NAME:____________________________________

**Instructions**
1. Do all of the 4 problems
3. You have 50 minutes for the exam
4. Show all your work
5. Do not separate midterm papers

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1. (25 pts) What is printed by the following program? Show all your work for partial credit.

```java
public class PrintMethodCalls {
    public static void main(String[] args) {
        System.out.println("main method begins");
        methodC();
        methodB();
        methodA();
        System.out.println("main method ends");
    }
    public static void methodA() {
        methodB();
        System.out.println("Called method A!");
    }
    public static void methodB() {
        methodC();
        System.out.println("Called method B!");
    }
    public static void methodC() {
        System.out.println("Called method C!");
    }
}
```

**Solution:**

```
main method begins
Called method C!
Called method C!
Called method B!
Called method C!
Called method B!
Called method A!
main method ends
```
2. (25 pts) What is printed by the following program? Show all your work for partial credit.

```java
public class ForLoop {
    public static void main(String[] args) {
        int i=1, j=2;
        System.out.println(i+ " " + j);
        for (i=2; i<40; i=2*i-1) {
            System.out.println(i+ " " + j);
            j=j+2;
        }
        System.out.println(i+ " " + j);
    }
}
```

**Solution:**

1 2
2 2
3 4
5 6
9 8
17 10
33 12
65 14
3. (25 pts) Write a complete program to convert degrees from fahrenheit to celcius. Read the degree in fahrenheit from the user. Convert to celcius and print it. Sample execution of the program is given below.

Enter degree in Fahrenheit
36.5
That is 2.5 degrees in celcius

The formula for converting degrees from fahrenheit to celcius is given below

\[
Celcius = \frac{5}{9}(Fahrenheit - 32)
\]

Solution:

```java
import java.util.*;
public class FahrenheittoCelcius {
    public static final Scanner CONSOLE = new Scanner(System.in);
    public static void main(String[] args) {
        double fahrenheit, celcius;
        System.out.println("Enter degree in Fahrenheit");
        fahrenheit=CONSOLE.nextDouble();
        celcius = 5.0/9*(fahrenheit-32);
        System.out.println("That is "+celcius+" degrees in celcius");
    }
}
```
4. (25 pts) The following program uses nested for-loops to print out some rows of a partial
multiplication table as below. Complete the program.

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Solution:

```java
public class OddLinesOfMultiplicationTable {
    public static void main(String args[]) {
        int i, j;
        for (i=1; i<10; i=i+2) {
            for (j=1; j<=5; j++) {
                System.out.print(i*j + " ");
            }
            System.out.println();
        }
    }
}
```