CS/SE 2S03 Tutorial #4 Exercises

1. Write a program that asks the user for their age. Output whether they are 18 or older.

2. The following program is incorrect in 3 separate instances. Locate the errors and correct the program

```
/**
 * ------------------------------------------------------
 * Project: CS2S03 Tutorial #4
 * Date: September 24, 2012
 * Author(s): Julian Glenesk
 * File: ProfitOrLossBad.java
 * ------------------------------------------------------
 * This program has 3 errors either syntactically, logically, or both.
 * It should determine whether the user has made a profit, a loss, or
 * has broken even based on the user-inputted net income.
 * ------------------------------------------------------
 */

import java.util.*;

public class ProfitOrLossBad {

  public static void main(String args[]) {

    double netIncome;
    Scanner input = new Scanner(System.in);

    System.out.println("Enter your Net Income");

    if (netIncome >= 0)
      System.out.println("Congratulations you have made a profit");
    else if (netIncome < 0)
      System.out.println("I'm sorry, you have incurred a loss");

    input.close();
  }
}
```

3. Using a while loop, calculate the factorial of an integer.

4. The following program is incorrect in 2 separate instances. Locate the errors and correct the program

```
/**
 * ------------------------------------------------------
 * Project: CS2S03 Tutorial #4
 * Date: September 24, 2012
 * Author(s): Julian Glenesk
 * File: RocketLaunchBad.java
 * ------------------------------------------------------
 * This program has 2 logical errors. It should simulate a
 * rocket launch counting down from 10 before "blasting off".
 * ------------------------------------------------------
 */

public class RocketLaunchBad {

  public static void main(String args[]) {

    int countdown = 10;

    while (countdown > 1) {

      System.out.println(countdown);
    }

    System.out.println("Blast Off!");
  }
}
```

5. Use an assert statement to check a logical pre-condition before taking the square root of a variable. Test your code with "java -ea" and the variable equal to 5, and again with -5.