Exam 1 Review
COSC 117: Programming Fundamentals
Dr. Joseph Anderson

Note: Assume any code snippets are properly contained inside a Java class main function.

1. Explain what is meant by an assignment statement, and give an example. What are assignment statements used for?

2. What is a type, as this term relates to programming?

3. If you have \( N \) eggs, then you have \( \frac{N}{12} \) dozen eggs, with \( N \mod 12 \) eggs left over. (This is essentially the definition of the / and \( \mod \) operators for integers.) Write a program that asks the user how many eggs she has and then tells the user how many dozen eggs she has and how many extra eggs are left over.

4. Write a code segment that will print out two different random integers selected from the range 1 to 10. All possible outputs should have the same probability. Hint: You can easily select two random numbers, but you have to account for the fact that the two numbers that you pick might be the same.

5. Write a for loop that will print out all the multiples of 3 from 3 to 36, that is: 3 6 9 12 15 18 21 24 27 30 33 36.

6. Write the exact output which results from the following code:

```java
int x,y;
x = 5;
y = 1;
while (x > 0) {
    x = x - 1;
y = y * x;
    System.out.println(y);
}
```

7. Suppose that you have an array of type double defined as double myNumbers[] = new double[100];. Write a code snippet which find the number of times 10.5 occurs in the array and prints that number to the user.

8. One of the primitive types in Java is boolean. What is the boolean type? Where are boolean values used? What are its possible values?

9. Explain why the value of the expression 2 + 3 + "test" is the string "5test" while the value of the expression "test" + 2 + 3 is the string "test23". What is the value of "test" + 2 * 3 ?

10. Define the range of an array of numbers to be the maximum value in the array minus the minimum value. Suppose that raceTimes is an array of type double[]. Write a code segment that will find and print the range of raceTimes.