COSC 201 Review Questions
Midterm #2
Fall 2012

1.) List and describe the four problems that need to be solved for the RSA encryption scheme?

2.) List the four things that Weiss believes to be essential to recursive solutions.

3.) What is the issue with the following solution to the Fibonacci problem?

```
public int fib(int a){
        if (a == 0 | a == 1) return 1;
        return (fib(a-1) + fib(a-2));
}
```

What is the solution to the issue above?

4.) Give a recursive method to print all permutations of a String s.

5.) Create a PriorityQueue of Strings. Add the following Strings to the queue: "Alan", "COSC 201", "Computer", "Science", "Schaefer", "SMCM". If we printed out this queue in order, what would print?

6.) How do you implement a Stack with a LinkedList?

7.) Create a Comparator that will order Integers from largest to smallest (instead of natural ordering) and use that in a PriorityQueue of Integers.

8.) Give the code to declare and instantiate a Stack of Strings called myStack. Add the elements "This" "is" "COSC" "201" and then print those elements.

9.) Give the basic formula for a Linear Congruential Generator.

10.) Declare and instantiate an Integer Queue in Java. Add the following numbers to the Queue: 1, 4, 22, -4, 3, 1. If we printed the Queue out in order, what would print?

11.) Give the postfix for the following infix notation equation and then evaluate (show all work):

$1 + 2 * 3 / 5 \wedge 3 \wedge 2 + 4 - (6 + 7 * 8 \wedge (7 + 8) * 9)$