1. Multiple choice. Select the *best* answer for the following questions.

(a) (1 point) Suppose a method in the `Account` class is declared:

```java
public double compoundInterest(double rate)
```

If we have declared an `Account` object `acct` in another class, which of the following would be a valid call to the above method?

A. `double result = Account.compoundInterest(13.0);`
B. `acct.compoundInterest(13.0, 15.0);`
C. `double result = acct.compoundInterest(13.0);`
D. `double result = compoundInterest(13.0);`
E. `double result = compoundInterest(acct, 13.0);`

(b) (1 point) What is the effect of giving a class member private access?

A. When an instance variable of a class is declared private it can be used in only one place in a program.
B. **When an instance variable of a class is declared private it can be used only in methods that are members of that class.**
C. When an instance variable of a class is declared private it can only be used by other private members of other classes.
D. When an instance variable of a class is declared private there will be only one instance of it, no matter how many objects are instantiated.
E. When an instance variable of a class is declared private it cannot be modified from its initial value.

(c) (1 point) What will happen if the `main()` method of a "testing" class tries to access a private instance variable of an object it has instantiated?

A. **The compiler will find the error. (ie syntax error)**
B. The compiler will automatically change the private variable to a public variable.
C. The program will compile successfully, but the program will not run correctly (ie runtime error)
D. The program will compile and run successfully.
2. Consider the following class:

```java
public class NumberHolder {
    public int anInt;
    public float aFloat;
}
```

(a) (1 point) Write a line of code which creates an instance of the class (in other words, creates one object).

**Solution:**

```java
NumberHolder nh = new NumberHolder();
```

(b) (2 points) Write some code which initializes the instance variables of your object in part a.

**Solution:**

```java
nh.anInt = 14;
nh.aFloat = 3.12f;
Scoring: 1 pt per instance variable
```

(c) (3 points) Write a `toString` method for this class.

**Solution:**

```java
public String toString() {
    return "anInt: " + anInt + " aFloat: " + aFloat;
}
```

Scoring:
+1 for method header
+1 for returning string
+1 for returning a reasonable textual representation of a NumberHolder object (ie, including instance variable values)

(d) (3 points) Write a constructor which allows you to initialize the instance variables via parameters.

**Solution:**

```java
public NumberHolder(int i, float f) {
    anInt = i;
    aFloat = f;
}
```

Scoring:
+1 correct method header
3. (3 points) In your own words, explain what the following statement does. (Hint: it does
many things, so be precise in your answer).

```java
Student s1 = new Student();
```

Solution:
+1: Makes a variable of type Student named `s1`
+1: Uses `new` operator to set aside space in memory for instance variables of `Student`
    object.
+1: Invokes `Student` constructor and initializes instance variables to default values.