MACS 261J
1st Midterm Exam
February 16, 2007   **Name:** _____

Question:	1	2	3	4	5	6	7	8	9	Total
Points:	5	2	3	5	5	5	5	5	15	50
Score:										

Question 1 . . . . (5 points)
    Write a complete Java program that prints "`Hello world`".

Question 2 . . . . (2 points)
    Write the Java code that defines ANSWER to be a *constant* with the integer
    value 42.

Question 3 . . . . (3 points)
    Complete the following method by inserting only one `return` statement:

```
/**
 * Computes a boolean value from two integers.
 * @return true, if -10 <= j <= 10 or k is non-negative; false, otherwise.
 */
public static boolean wierd(int j, int k) {


}
```

Question 4 . . . . (5 points)
The following code is intended to convert degrees Celcius to degrees Fahrenheit:

```
double degreesC = 10;
double degreesF = (9/5)*degreesC + 32;
```

(a) [2 points] What value of degreesF is computed?

(b) [2 points] Modify this code to compute the correct value.

(c) [1 point] Add a statement that prints the value of degreesF.

Question 5 . . . . (5 points)
Complete the following method:

```
/**
 * Returns the n'th power of x, computed using only multiplication.
 * That is, computes x, x*x, and so on, up to the specified power n.
 * @param x the number to raise to the n'th power.
 * @param n the power of x, a non-negative integer.
 * @return x raised to the power n.
 */
public static double power(double x, int n) {




}
```

Question 6 . . . . (5 points)
Complete the following method:

```
/**
 * Compares two values.
 * @return -1, if x less than y; 0, if x equals y; 1, if x greater than y.
 */
public static int compare(double x, double y) {




}
```

Question 7 . . . . (5 points)
   Complete the following method:

```
/**
 * Returns the largest (the maximum) of the four specified values.
 */
public static double max(double a, double b, double c, double d) {




}
```

Question 8 . . . . (5 points)
   Circle and describe all errors in the following program fragment:

```
double firstValue;
double 2ndValue = firstValue;
if (firstValue=2ndValue) {
  System.out.println("equal")
} else
  System.out.println("not equal");
}
```

Question 9 . . . . (15 points)
Implement all methods for the following class:

```java
/**
 * A student record with name, grade average, and number of grades.
 */
public class Student {

  /**
   * Constructs a student with the specified name.
   */
  public Student(String name) {



  }

  /**
   * Adds the specified grade for this student.
   */
  public void addGrade(double grade) {



  }

  /**
   * Gets the name for this student.
   */
  public String getName() {

  }

  /**
   * Gets the grade average for this student. (All grades have equal weight.)
   */
  public double getAverage() {

  }

  /**
   * Gets the number of grades for this student.
   */
  public int countGrades() {

  }

  /**
```

```java
     * Determines whether this student equals the specified student.
     * Two students are equal if they have the same name, grade average,
     * and number of grades.
     */
    public boolean equals(Student s) {



    }

    /**
     * Returns a clone of this student with the specified name.
     * The clone may (or may not) have a different name, but has the
     * same average and number of grades as this student.
     */
    public Student clone(String name) {




    }

                                                  // declare
                                                  // private
                                                  // fields
                                                  // here

    /**
     * Using the methods defined above,
     * (1) constructs a record for a student named "Bill", (2) adds two
     * grades to Bill's record, (3) creates a clone of Bill named "Jill",
     * and (4) and prints whether records for Bill and Jill are equal.
     */
    public static void main(String[] args) {









    }
}
```