CSCI 261J
2nd Midterm Exam
April 12, 2013   **Name:** _____

Question:	1	2	3	4	5	6	7	Total
Points:	5	5	5	5	10	10	10	50
Score:								

Question 1 . . . . (5 points)
Complete the following method, which returns `true` if and only if all elements
of the specified array are non-negative (that is, greater than or equal to zero).

```java
public static boolean nonNegative(float[] a) {




}
```

Question 2 . . . . (5 points)
Complete the following method, which returns a new array that contains all
elements of the specified array, but in reverse order: `...,a[2],a[1],a[0]`.

```java
public static float[] reverse(float[] a) {




}
```

Question 3 . . . . (5 points)
What is printed by the following Java program fragment?

```java
double d00 = 0.0/0.0;
System.out.println("d00 = "+d00);
int i00 = 0/0;
System.out.println("i00 = "+i00);
```

Question 4 .... (5 points)
Complete the following method, which returns a new 2D array containing the
squares of corresponding values in the specified 2D array x.

```
public static float[][] squares(float[][] x) {




}
```

Question 5 .... (10 points)
Complete the following methods, each of which returns the average of values in
a specified array. *Call the first method in your implementation of the second
method.*

```
public static float average(float[] a) {




}

public static float average(float[][] a) {




}
```

Question 6 . . . . (10 points)
   For each of the following questions, circle *all (one or more)* correct answers.

   (a) Which of the following classes extend `RuntimeException`?

   A. `FileNotFoundException`

   B. `IOException`

   C. `InputMismatchException`

   D. `ArithmeticException`

   (b) Which of the following properties apply to text files?

   A. Can be viewed easily using any text editor.

   B. Contain bytes representing only text, not numbers.

   C. Contain bytes that represent characters and digits.

   D. Are often larger than binary files with the same data.

   (c) A program writes one int and ten doubles to a new binary file. How many bytes are in that file?

   A. 48

   B. 84

   C. 44

   D. 88

   (d) Why is it important to always close an output stream?

   A. To eject the disc on which the output data may be stored.

   B. To erase all of the data in the associated file.

   C. To ensure that all output data are written to the file.

   D. To enable a second output stream to be opened.

Question 7 . . . . (10 points)
    To demonstrate use of the class `MinFinder`, complete the method `main` in the
    class `DemoMinFinder`, and write the class `Quadratic`.

```
public interface Function {
  // Returns value of the function y = f(x) for specified x.
  public double y(double x);
}

public class MinFinder {
  // Returns a value x such that the function y = f(x) is minimized.
  public double findMin(Function f) {
    // ... details omitted; assume this method works as specified.
  }
}

// Uses classes Quadratic and MinFinder to find the value x that
// minimizes the function f(x) = x*x-3*x+2, and then prints both
// the minimizing x and the corresponding minimum value f(x).
public class DemoMinFinder {
  public static void main(String[] args) {




  }
}

// Quadratic function f(x) = a*x*x+b*x+c for arbitrary a, b, c.
// (Implement this class in the space provided below this line.)
```