# Assignment 5 (40 points)

**Question 1**

Write static methods as follows:

- **double sum(double[] a)** – returns the sum of the entries in the array **a**.
- **double[] fill(int n, double v)** – returns an array of **n** doubles, all of whose values are **v**.
- **double[] random (int n)** – return an array of **n** random doubles.
- **double min(double[] a)** – returns the minimum element of the array **a**.
- **double max(double[] a)** – returns the maximum element of the array **a**.
- **double average(double[] a)** – returns the average (or mean) of the elements of the array **a**.
- **double variance(double[] a)** – returns the variance of the elements of the array **a** (note: this method should call your **average** method).
- **double stdDev(double[] a)** – returns the standard deviation of the elements of the array **a** (note: this method should call your **variance** method).
- **double[] read()** – reads an array from the keyboard and returns it (read the number of elements first, and then that many numbers).
- **void print(double[] a)** – prints an array, **a**, on a single line with commas between elements (do **NOT** use **Arrays.toString()**).

Write a **Main class** with a **main method** that tests your methods appropriately (i.e. by calling each method at least once with various inputs), and printing the results.

**Question 2**

Consider the following method and method call:

```
public static int[] inc(int[] a) {
      a[0]++;
      return a;
}

int[] a = { 10, 20, 30, 40 };
System.out.println(a[0]);
int[] b = inc(a);
```

```
System.out.println(b[0]);
System.out.println(a[0]);
```

What is the output from this code? **Carefully** explain your answer (i.e. carefully show how the method **inc** is called).

**Question 3**

Consider the following code:

```
int[] a = { 10, 20, 30, 40 };
int[] b = a;
int[] c = { 10, 20, 30, 40 };
System.out.println(a == b);
System.out.println(a == c);
```

What is the output from this code? **Carefully** explain your answer.