Name _____ **CSE 8B** **PID _____**

VERSION A

Quiz 2

Winter 2016 **Signature _____**

This quiz is to be taken **by yourself** with closed books, closed notes, no electronic devices. *Write your name on the answer sheet too!*

Problem 1 (10 points):

Given the definition of class StringArray below, write the output of each println statement when this is run. (Hint: Draw memory models/stack frames if you are not sure. Start in the main() method. Java prints "null" for a null reference.) Write your answers on the answer sheet.

```
public class StringArray {

  private String[] array;
  private String string;

  public StringArray( String s, int n ) {
    this.array = new String[n];
    this.string = new String( s );
  }

  public void foo( String s, int n) {
    System.out.println( "In foo(): s = " + s); // ------------LINE a. ---------------

    System.out.println( "In foo(): array[1] = " + array[1] ); // ------------LINE b. --------------

    this.array[n] = s;
    s = new String( "foo1" );
    this.string = s;

    System.out.println( "In foo(): s = " + s ); // ------------LINE c. ---------------

    System.out.println( "In foo(): array[1] = " + array[1] ); // ------------LINE d. --------------
  }

  public void foo( int n, String s) {
    System.out.println( "In foo(): s = " + s ); // ------------LINE f. ---------------

    System.out.println( "In foo(): array[2] = " + array[2] ); // ------------LINE g. ---------------

    this.string = this.array[n];
    s = new String( "foo2" );
    this.array[n] = s;

    System.out.println( "In foo(): s = " + s ); // ------------LINE h. ---------------

    System.out.println( "In foo(): array[2] = " + array[2] ); // ------------LINE i. ---------------
  }

  public static void main( String[] args ) {
    int n = 1;

    StringArray var1 = new StringArray( "CSE8B", 5 );
    var1.foo( "CSE8B", n++ );

    System.out.println( "var1.string = " + var1.string ); // ------------LINE e. ---------------

    StringArray var2 = new StringArray( "W-2016", 5 );
    var2.foo( ++n, "W-2016" );

    System.out.println( "var2.string = " + var2.string ); // ------------LINE j. ---------------
  }
}
```

Problem 2 (5 pts): You type `java Test` at the command line and you get the following:

```
Exception in thread "main" java.lang.ArrayIndexOutOfBoundsException: 5
        at Test.callCrazy(Test.java:7)
        at Main.main(Main.java:8)
```

Now answer the following questions:

a. Is this a compile time or a run time error?
b. Name the method in which the error occurred.
c. Name the class in which the error occurred.
d. Name the file in which the error occurred
e. At what line number did the error occur?

Problem 3 (3 points): What is the output of the following code?

```
public class PrintArray
{
  public void print()
  {
    int[][] matrix = {{1,1}, {2,4}, {3,9}};
    for(int i=0; i<matrix.length; i++)
    {
      for(int j=0; j<matrix[i].length; j++)
      {
        System.out.print(matrix[i][j] + ", ");//print here
      }
      System.out.println(" ");//println here
    }
  }

  public static void main(String[] args)
  {
    PrintArray pa = new PrintArray();
    pa.print();
  }
}
```

Problem 4 (2 points):

Recall from PSA2, class WordPair (right) is defined with a word and a count along with accessor methods getWord() and getCount(). We used an ArrayList of these WordPair objects to maintain information about the number of occurrences of each word in a text file. You can assume there are no duplicate count values - each word has a different count value. You can also assume there is at least one WordPair object in the ArrayList.

```
public class WordPair {

  private String word;
  private int count;

  public String getWord() {
    return word;
  }

  public int getCount() {
    return count;
  }
  …
}
```

What does the following method do? **(Please circle the BEST option on answer sheet. Pick only one option!)**

```
public static int mystery( ArrayList<WordPair> list, char x ) {
  int var1 = -1;
  String var2 = null;

  for ( int i = 0; i < list.size(); i++ ) {
    String word = list.get(i).getWord();
    if (word.length() > 0 && word.charAt(0) == x) {
      var1 = list.get(i).getCount();
      var2 = list.get(i).getWord();
    }
  }
  return var1;
}
```