1. Given the following declarations:
   ```
   int a = 2;
   int b = 3;
   double x = 2.0;
   double y = 1.5;
   double[] list = new double[3];
   ```
   a) Draw a diagram depicting the contents of the array list with its default values.
   ![Diagram]

   b) For each of the following assignments, if the code is legal Java, redraw the diagram from (a) and circle the element modified by the assignment; otherwise write “ERROR.”
   ```
   • list[1] = x;  
   ![Diagram]
   • list[b] = 4;  
   ERROR
   • list[b - a] = 3;  
   ![Diagram]
   • list[x] = a;  
   ERROR
   ```

2. Show the output produced by the following code fragment:
   ```java
   double[] list = new double[6];
   for (int i=0; i < list.length; i++)
     list[i] = i + 2;
   for (int i=list.length - 1; i >= 0; i--)
     System.out.println(list[i]);
   ```
   ![Output]

3. Write a code fragment to create an array named bunchOfABAB of 100 char values and to set them all to alternating the characters 'A' and 'B' (so array would consist of ABABABA.. etc)
   ```java
   char[] bunchOfABAB = new char[100];
   for (int i=0; i < bunchOfABAB.length; i++)
     bunchOfABAB[i] = ((i % 2 == 0) ? 'A' : 'B');
   ```

Note: Many possible correct solutions.
1. Given the following declarations:
   ```java
   int a = 3;
   int b = 2;
   double x = 2.0;
   double y = 3.5;
   double[] list = new double[4];
   ```
   a) Draw a diagram depicting the contents of the array with its default values.
   ```
<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
   ```
   b) For each of the following assignments, if the code is legal Java, redraw the diagram from (a) and circle the element modified by the assignment; otherwise write “ERROR”.
   ```java
   • list[x] = 1;  ERROR
   • list[a] = y;  0   1   2   3
   | 0.0| 0.0| 0.0| 3.5|
   • list[b - a] = 3;  ERROR
   • list[1] = -1;  0   1   2   3
   | 0.0| -1.0| 0.0| 3.5|
   ```

2. Show the output produced by the following code fragment:
   ```java
   double[] list = new double[3];
   for (int i=0; i < list.length; i++)
       list[i] = i * 2;
   for (int i=list.length - 1; i >= 0; i--)
       System.out.println(list[i]);
   ```
   Output:
   ```
   4.0
   2.0
   0.0
   ```

3. Write a code fragment to create an array named almostTrue of 25 values of type boolean. Initialize all values to true, EXCEPT for the last value, which should be set to false.
   ```java
   boolean[] almostTrue = new boolean[25];
   for (int i=0; i < almostTrue.length; i++)
       almostTrue = true;
   almostTrue[24] = false;
   ```
Note: Many possible correct solutions.