1. Given the following declarations:

```java
int a = 3;
int b = 2;
double x = 2.0;
double y = 1.5;
double[] list = new double[4];
```

a) Draw a diagram depicting the contents of the array with its default values.

```
0 1 2 3
0.0 0.0 0.0 0.0
```

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[x] = 1;`  ERROR

- `list[b] = y;`  0 1 2 3 0.0 0.0 1.5 0.0

- `list[b - a] = 3;`  ERROR

- `list[1] = -6;`  0 1 2 3 0.0 -6.0 1.5 0.0

2. Show the output produced by the following code fragment:

```java
double[] list = new double[4];
for (int i=0; i < list.length; i++)
    list[i] = i * 3;

for (int i=list.length - 1; i >= 0; i--)
    System.out.println(list[i]);
```

```
Output:
9.0
6.0
3.0
0.0
```

3. Write a code fragment to create an array named `nearlyAllFalse` of 100 values of type `boolean`. Initialize all values to `false`, except for the first and last, which should be set to `true`.

```java
boolean[] nearlyAllFalse = new boolean[100];
nearlyAllFalse[0] = true;
nearlyAllFalse[99] = true;
```

Note: Many possible correct solutions.
1. Given the following declarations:
   ```java
   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](image)

   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[1] = x;  
   ```

   ![Diagram](image)

   ```java
   • list[b - a] = 3;  
   ```

   ![Diagram](image)

   ```java
   • list[b] = 4;  
   ERROR
   ```

   ```java
   • list[x] = a;  
   ERROR
   ```

2. Show the output produced by the following code fragment:

   ```java
   double[] list = new double[4];
   for (int i=0; i < list.length; i++)
     list[i] = i + 3;
   for (int i=list.length - 1; i >= 0; i--)
     System.out.println(list[i]);
   ```

<table>
<thead>
<tr>
<th>Output:</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0</td>
</tr>
<tr>
<td>5.0</td>
</tr>
<tr>
<td>4.0</td>
</tr>
<tr>
<td>3.0</td>
</tr>
</tbody>
</table>

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 < bunchOfM.length; i++)
     bunchOfABAB[i] = ((i % 2 == 0) ? 'A' : 'B');
   ```

   Note: Many possible correct solutions.