CSC 1051 Arrays - Review questions

1) Given the following declarations:

```java
int a = 2;
int b = 3;
int c = 5;
double x = 2.5;
double y = 1.0;
double z = 4.32;
double[] list = {2.1, 3.8, 0.4};
```

Show what value is assigned by each of the following assignments, or state that there is an error, clearly indicating through the use of a decimal point whether values are of type int or double. In the case of the list array, show its contents and circle the element modified by the assignment.

a) \( z = a \div b; \)

b) \( z = \text{(double)} a \div b; \)

c) \( c = \text{(int)} x \times 5; \)

d) \( c = x + 2; \)

e) \( c = a \% b; \)

f) \( z = \text{list}[0]; \)

g) \( z = \text{list}; \)

h) \( \text{list} = x; \)

i) \( \text{list}[0] = a; \)

j) \( \text{list}[0] = x; \)

k) \( \text{list}[a] = x; \)

l) \( \text{list}[y] = 0; \)

2) Draw a diagram showing the array contents after execution of the following code fragment:

```java
int[] list = new int[4];
for (int i=0; i < list.length; i++)
    list[i] = i * 10;
```

3) Draw a diagram showing the array contents after execution of the following code fragment:

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

4) Assume the list array has been declared and initialized as in the previous question. Write a code fragment that uses a loop to add 2 to each array element.

5) Assume the list array has been declared and initialized as in the previous question. Write a code fragment that creates another array called listToo of the same size and copies all the elements from list to listToo BACKWARDS:

a) Without using a loop

b) Using a loop
6) Assume an array list has been declared and initialized with some values. Write a code fragment that creates another array called biglist of twice the size and then copies each element from list to listToo twice, as follows:

a) Copying the entire list first forward and then backwards. Example:

```
list
  0 3
  1 8
  2 2
  3 6
  4 7

biglist
  0 3
  1 8
  2 2
  3 6
  4 7
  5 7
  6 6
  7 2
  8 8
  9 3
```

b) Copying each element twice in consecutive locations. Example:

```
list
  0 3
  1 8
  2 2
  3 6
  4 7

biglist
  0 3
  1 3
  2 8
  3 8
  4 2
  5 2
  6 6
  7 6
  8 7
  9 7
```

7) Draw a diagram showing the array contents after execution of the following code fragment:

```java
int[] a = {2, 5, 3};
int[] b = new int[8];

for (int i=0; i < a.length; i++)
    b[i] = a[i];

for (int i=a.length; i < b.length; i++)
    b[i] = 5;
```
8) Draw a diagram showing the array contents after execution of the following code fragment:

```java
int[] a = {4, 2, 7, 9};
int[] b = new int[10];

for (int i=0; i < a.length; i++)
    b[i] = (a[i] * 10) + i;

for (int i=a.length; i < b.length; i++)
    b[i] = a[a.length-1] * 100;
```