

Teaching Unit 6: ArrayList and Wrapper Classes

6.1 ArrayList Basics

Problems

Name: _____ Date: _____

Write your reasoning and Java code in the space below. Code uses java.util imports where needed.

6.1.1 - Trace

Determine the exact output. Explain the Java rule or state changes that produce it.

```
ArrayList<Integer> list = new ArrayList<Integer>();  
list.add(3); list.add(7);  
System.out.println(list.set(1, 9));  
System.out.println(list);
```

6.1.2 - Write code

Build an ArrayList<String> containing "red", "green", and "blue". Replace "green" with "gold" and print the resulting list.

Teaching Unit 6: ArrayList and Wrapper Classes

6.2 ArrayList Insert and Remove

Problems

Name: _____ Date: _____

Write your reasoning and Java code in the space below. Code uses java.util imports where needed.

6.2.1 - Trace

Determine the exact output. Explain the Java rule or state changes that produce it.

```
ArrayList<Integer> list = new ArrayList<Integer>();  
list.add(10); list.add(20); list.add(30);  
list.remove(1);  
System.out.println(list);
```

6.2.2 - Write code

Write public static void removeZeros(ArrayList<Integer> values). Remove every zero in place, including consecutive zeros, without skipping elements.

Teaching Unit 6: ArrayList and Wrapper Classes

6.3 ArrayList Traversal

Problems

Name: _____ Date: _____

Write your reasoning and Java code in the space below. Code uses java.util imports where needed.

6.3.1 - Trace

Determine the exact output. Explain the Java rule or state changes that produce it.

```
ArrayList<Integer> list = new ArrayList<Integer>(Arrays.asList(1,2,3));  
int sum = 0;  
for (int value : list) sum += value;  
System.out.println(sum);
```

6.3.2 - Write code

Write public static int totalLength(ArrayList<String> words). Assume all elements are non-null. Return the total number of characters, including 0 for an empty list.

Teaching Unit 6: ArrayList and Wrapper Classes

6.4 ArrayList and Wrapper Classes

Problems

Name: _____ Date: _____

Write your reasoning and Java code in the space below. Code uses java.util imports where needed.

6.4.1 - Trace

Determine the exact output. Explain the Java rule or state changes that produce it.

```
Integer a = 150;  
Integer b = 150;  
System.out.println(a.equals(b));  
System.out.println(a.intValue() == b.intValue());
```

6.4.2 - Write code

Write public static double mean(ArrayList<Integer> values). Assume a nonempty list of non-null values. Return an average that preserves the fractional part.