

Homework Assignment 1

Due date: September 10th, 11:55pm EST

Problem 1

A.)

- a: Yes
- b: Yes
- c: No, because a Fruit may or may not be a Citrus
- d: Yes
- e: No, because a Citrus is not an Apple
- f: Yes

B.) * Assuming it is System.out.print, not System.out.println

- a: Fruit constructor calledCitrus constructor calledLemon
constructor called
- b: Fruit constructor calledApple constructor called

Problem 2

0	1	2	3	4	5	6	7	8	9
X = 0.0 Y = 0.0	X = -1.0 Y = 0.0	X = 1.0 Y = 1.0	X = 1.0 Y = -1.0	X = 0.0 Y = 1.5	X = 1.0 Y = 2.0	X = 2.5 Y = 0.0	X = -2.0 Y = 2.0	X = 0.0 Y = 3.0	X = -1.0 Y = -4.0

Problem 3

```
public static boolean removeDuplicates(ArrayList toChange)
{
    boolean changed = false; // Used as a return value later on, initialized to false,
    and is changed to true if ArrayList is changed

    // Iterates through the ArrayList, storing a word that will be used to go through
    the entire ArrayList again. This enables us to not care if the ArrayList is sorted or
    not, since it will go through the entire ArrayList to identify duplicates
    for (int i = 0; i < toChange.size(); ++i)
    {
        String stored = toChange.get(i).toString();

        for (int j = 0; j < toChange.size(); ++j)
        {
            // For each word that was stored, goes through the entire ArrayList to find
            duplicates
            if (toChange.indexOf(stored) != toChange.lastIndexOf(stored))
            {
                toChange.remove(toChange.lastIndexOf(stored)); // Removes the
                duplicates
                changed = true; // Changes the return value if it is changed
            }
        } // End for loop that searched the ArrayList for the stored word
    } // End for loop that used all the stored words in the ArrayList
    return changed;
} // End of removeDuplicates method
```