Assignment - White-box Testing

For the assignment you will be using the source code of the methods. For each method you should first derive a suite of test cases which together have full statement coverage of the source code. Then you should write additional test cases (if any are needed) which together with the ones already there have full branch coverage of the code. The test cases should be executable with **JUnit**. If any of the test cases for a method fails, try to find the bug and correct the source code.

Keep in mind that a bug in the implementation may imply that full statement or branch coverage is not possible. This it in itself an indication of the bug's existence. In such case, it's enough if you have full coverage after fixing the bug.

The assignment is about the class `Set` (**See "set.java"**).

`Set` represents sets of integers. The elements of a set are stored in an `ArrayList`. They are sorted and without duplicates to speed up some operations. The following two methods might need an explanation:

```
public void section(Set s) { ... }
```

removes from this set any element that is equal to an element in `s`.

```
public boolean containsArithTriple() { ... }
```

returns `true` iff there are three elements, x, y and z, in this set such that y - x = z - y.

Note that you can use `toArray` to easily examine the state of a class instance.

1. Use statement and branch coverage to derive test cases for `insert`.
2. Use statement and branch coverage to derive test cases for `member`.
3. Use statement and branch coverage to derive test cases for `section`.
4. Use statement and branch coverage to derive test cases for `containsArithTriple`.
5. If you find any bugs, try to correct them in the implementation. Make a new version of `Set.java` which passes all your tests.