



3. (25 points) You have been assigned to design test cases for black box testing of the two argument `add` method in `java.util.Vector<E>`. Here is part of its documentation:

```
public void add(int index, E element)
```

Inserts the specified element at the specified position in this Vector. Shifts the element currently at that position (if any) and any subsequent elements to the right (adds one to their indices).

- (a) What is the input domain of the `add` method?
- (b) What is a basis for dividing the input domain you described into subdomains?
- (c) Using the basis defined in (b), specify 3 or 4 subdomains.
- (d) For each subdomain from (c), give a test case input and the expected output.

4. (15 points) You have been assigned to write test cases for black box testing of a function called `isRightTriangle`. Here is part of that function's documentation.

```
public static boolean isRightTriangle(int f, int g, int h)
Returns true if a right triangle exists with sides of length f, g, and h. Returns false
otherwise. Uses the Pythagorean Theorem.
```

To do your testing you need a testing oracle. Suggest two testing oracles that you could reasonably use here; the two should be completely different from each other.

5. (15 points) In this class you have designed and run unit tests, and you have written partial plans for integration testing and acceptance or system testing. Name and briefly describe two other kinds of testing that were discussed in lecture or the textbook.

6. (5 points) What is the difference between white-box testing and black-box testing?

7. (15 points) Draw and label a diagram of the spiral software process model.