Quiz #1D

Name:

READ THE QUESTIONS CAREFULLY!!! DO NOT WASTE TIME DOING MORE THAN IS ASKED FOR. DO NOT IMPLEMENT METHODS UNLESS SPECIFICALLY REQUESTED. YOU DO NOT NEED TO COMMENT THE CODE.

1. Write an interface cop3530.Set with the public methods below. (This is a different interface than what you wrote for program 1, but the principles are identical.) Set is the name of the interface that stores Objects (NOT pairs) that has the following functionality:

   - Three accessors: contains returns true if a specified object is found in the set; returns false otherwise. isEmpty tests if the Set is empty; and size returns the number of elements currently stored in the Set container.
   - Two mutators: One makes the Set empty; the other (add) inserts a new item.

2. Provide a class cop3530.SortedArraySet that implements the Set interface. Represent the SortedArray internally as a (sorted) Object[], a size data member, and a Comparator. After listing the data fields, you may use ... to indicate the rest of the body of this class, except for the following which must be implemented:

   (a) Implement a zero parameter constructor; your implementation may assume the existence of a one-parameter constructor that takes a Comparator as a parameter. Make sure you provide the class declaration for the default comparator that you will need.

   (b) Implement add. Make sure you have array doubling code. Also, make sure to return false if the item is already present.