

A+ Sets Worksheet 1

Answer each of the following questions. (100 points)

1. Is the following code [legal / illegal]? `Collection c = new Collection();`
2. Is the following code [legal / illegal]? `Collection c = new List();`
3. Is the following code [legal / illegal]? `Collection c = new ArrayList();`
4. Is the following code [legal / illegal]? `List x = new Set();`
5. Is the following code [legal / illegal]? `List x = new TreeSet();`
6. Is the following code [legal / illegal]? `Collection x = new TreeSet();`
7. What is the bigO for a TreeSet? [$O(\log_2 N)$ / $O(1)$ / $O(N)$]
8. What is the bigO for a HashSet? [$O(\log_2 N)$ / $O(1)$ / $O(N)$]
9. TreeSet can only store Objects that implement which interface? _____

10. What is output by the code at right?

```
Set<Integer> s = new TreeSet<Integer>();
s.add(5);
s.add(6);
s.add(6);
s.add(7);
out.println(s);
```

11. What is output by the code at right?

```
Set<Integer> a = new TreeSet<Integer>();
a.add(9);
out.println(a.add(6));
out.println(a.add(6));
a.add(1);
out.println(a);
```

12. What is output by the code at right?

```
Set<String> b = new TreeSet<String>();
b.add("a");
b.add("6");
b.add("A");
b.add("d");
out.println(b);
```