Group 31

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HW3

3. Recursion

3.1
H03_31.java file submitted separately.

3.2
H03_32.java file submitted separately.

3.5
H03_35.java file submitted separately.

4. Linear and Binary Search

4.1
H03_41.java file submitted separately.

4.3
Not Graded.

5. Algorithms and Big O Notation

5.1
f(n) = 2.5n + 4 = O(n)
f(n) >= C * |g(n)| for all n > n0
where O(n) = C * |g(n)|

5.2
Not Graded.

5.3
Not Graded.

5.4
Not Graded.

5.5
f(n) = # of times key operation is performed as a function of n.
n = size of *pList*

5.6
Not Graded.

5.7
H03_57.java file submitted separately.

5.8
Not Graded.

6. Sorting

6.1
Point.java file submitted separately.

6.2
Not Graded.

6.3
Not Graded.

6.4
Insertion Sort worst case time complexity : n^2 = 10^20
This Super Computer performs 1 comparison ever 25ns
Total Time: (25*10^11)/60
The above result accounts for the time per minute, and is also the result.

Answer: For a computer to sort 10billion elements in 1 minute or less, it would have to be a minimum 41666666666.7 times faster than a computer that performs one comparison every 25ns.