Problem Set 1

1.
Suppose it is known that the running time of an algorithm is always about $N^2$ and the running time of another algorithm is always about $N^3$. What does this say about the relative performance of the algorithms? Suppose instead that the running time of the first is $O(N^2)$ and the running time of the second is $O(N^3)$. What does this say about the relative performance of the algorithms?

2.
Which of the following programs (from the book) are stable sorts? selection, insertion, shellsort, bubblesort, quicksort?

3.
List the following programs in order of their likely running time on a file of $N$ equal keys, for large $N$: quicksort, insertion, selection.

Extra Credit.
Include shellsort in the list for the third question above.

Due at precept on Feb.14/15