1. Use quick sort to sot this list {3,5,7,8,1,9,2,4,6}
2. Count the number of comparisons required in part a
3. Describe an algorithm for finding both the largest and the smallest integers in a finite sequence of integers.
4. Build a binary search tree for the words oenology, phrenology, campanology, ornithology, ichthyology, limnology, alchemy, astrology using alphabetical order.



1. Show whether the function f(x) = $x^{2}+x+1 $is O(x)
2. Give a big O estimate of the function f(n) = 2 f ($\frac{n}{3}$) + 4
3. Solve this linear recurrence relation with initial conditions *an* = 7*an*−1 − 10*an*−2 for *n* ≥ 2, *a*0 = 2, *a*1 = 1
4. Find a closed for the generating function with this sequence -3, 3, -3, 3, -3, 3, -3, 3 ….