Homework 1 CS251 Joel Van Auken

1-1) **d. O(nlog(n))** for c = 1794500 and n = 10
1-2) **c. O(n!)** for c = 3 n=1
2-1) 1: 1
2: 2+n
3: n(2+n)
4: n^2(2+n)
5: n^3(1)
a. O(n^3)
2-2) 1: 1
2: 2+n
3: n(2+n)
4: n^2(1)
a. O(n^3)
2-3) 1: 2+n
2: n(2+n)
3: n^2(O(k))
b. O(nlog(n))
3-1) **a.bigTheta(n^2log(n))** for c = 3 c' = 3 and n = 1
3-2) **c. bigTheta(n^2)** for c = 1 c' = 1 and n = 1
4) **b. O(n)** this would be a linear search with your answer being the last possible entry
5) **a. 2,670,286,179** this would be when your answer being the last possible entry
6-1) **d. 20** this would make the running time of both algorithms 2000 time units
6-2) **b. 50** this would make both running times 10,000