# Assignment 1 David Browning

1.
a  $f(n) = O\ g(n)$

b  $f(n) = \Theta\ g(n)$

c  $f(n) = o\ g(n)$

d  $f(n) = O\ g(n)$

e  $f(n) = \Omega\ g(n)$

2.
a  $O(n)$

b  $O(n^3)$

c  $O(n^2)$

d  $O(n^3)$

e  $O(n^2)$

3.  $O(n^1)$

4.

a
```
SelectionSort(list[])
    Int smallest = list[0]
    vector<int> newList;
    For(int i = 0;i<list.size();i++)
        For(remaining elements){
            If (smallest < e)
                smallest = e
        }
        Swap first and smallest
```

b  $O(n^2)$

c  $O(n^2)$

5. See Code
6. See Code
7. Approximately 11,822.6 Centuries.
8. Approximately 9.993x10^274  (ouch)

$$\frac{2^{100}}{3\ 4\times10^{16}}$$

60 sec/min

60 min/hr

24 hr/day

365 day/yr

100 yr/CENTURY

$\approx 11,822\ 6$ CENTURIES