Assignment 2

Problems from the text book

1) For each function f(n) and time t in the following table, determine the largest size n of a problem that can be assuming that the algorithm to solve the problem takes f(n) microseconds.

	1 second	1 minute	1 hour	1 day	1 month	1 year
lg n						
sqrt n						
n						
n lg n						
n2						
n3						
2n						
n!						

2) Calculate the polynomial time for the Bubble Sort. Use a different constant for each operation.

```
BUBBLESORT(A)
1  for i = 1 to A.length - 1
2       for j = Lengthen downto i + 1
3            if A[j] < A[j - 1]
4                 exchange A[j] with A[j - 1]
```

3) Show that When |x| ≤ 1, we have the approximation

$$e^x = 1 + x + \Theta(x^2).$$

solved in time t,

1 century