COMP 312
Assignment 2
Due at 1:10 pm, Thursday, February 12, 2009
All problems are of equal value.

Reading

Cormen, Leiserson, Rivest and Stein, Chapter 4 (also section 2.3).

Practice

CLRS, 2.3-3, 4.1-1, 4.1-2, 4.1-5, 4.3-1, 4.3-2, 4.3-3, 4.3-4, 4-1 (b,d,f,h), 4-2, 4-4 (b,d,f,h,i,j), 4-6, 4-7.

To Be Handed In

1. Create a recurrence whose solution would be $\Theta(n^4 \log^3 n)$.
2. CLRS, 4-1 (a), (c), (e), (g)
3. CLRS, 4-4 (a), (c), (e), (g)
4. CLRS, 7-3
5. Express the running time (as a function of `n` only, i.e., assume that `x` is fixed for this analysis and compute the asymptotic running time as `n` increases) of the following pseudo-code algorithm as a recurrence and solve it. What does the algorithm do?

```
P(x,n):

 if n = 0 return 1
 if n is odd then return x*(P(x,(n-1)/2))^2 else return (P(x,n/2))^2
```

Note: `a^2` is a^2.