

COMP 312
Assignment 5
Due at 9 a.m., Thursday, April 14, 2011
All problems are of equal value.

Reading

Cormen, Leiserson, Rivest, Stein, Chapter 34.

Practice

CLRS, 34.1-1...6, 34.2-1, 34.2-2, 34.2-4, 34.2-5, 34.2-8...11, 34.3-1..3, 34.3-6, 34.3-7, 34.4-3...7, 34.5-1...5, 34.5-7, 34-1, 34-3, 34-4.

To Be Handed In

1. CLRS, 34.2-3
2. (a) 34.2-6
(b) 34.5-6
(c) 34.2-7
3. CLSR, 34.5-8
4. CLRS, 34-2. (Hint: You can use the solution to 34.5-5.)
5. (a) DNF-SAT is the problem of given a boolean formula in Disjunctive Normal Form, decide if it is satisfiable. Show that DNF-SAT is in P .
(b) Show how to convert any formula that is in CNF to an equivalent formula in DNF.
(c) What is wrong with the following proof that $P = NP$? By part (b) we have that $CNF-SAT \leq DNF-SAT$. Since $CNF-SAT$ is NP -complete we have that $DNF-SAT$ is NP -complete (by Lemma 34.8). But by part (a) $DNF-SAT$ is in P and therefore $P = NP$ (by Theorem 34.4).