CS 4810 Homework Assignment 12 due Monday class Nov 20.

We will grade your homework on clarity and quality of writing.

1. Give a polynomial time algorithm for determining if a 2-CNF formula is satisfiable.

2. Assume there is a polynomial time reduction of a problem $P_1$ to $P_2$.
   
   (a) What can you say about $P_2$ if $P_1$ is NP-complete?
   
   (b) What can you say about $P_2$ if $P_1$ is not a recursive set?
   
   (c) What can you say about $P_1$ if $P_2$ is NP-complete?
   
   (d) In general what is the relationship of $P_1$ and $P_2$?

3. Prove that the clique problem is NP-complete.

4. Prove that NP is contained in PSPACE.

5. Prove that NPSPACE=PSPACE.