RYERSON UNIVERSITY
MTH 714 LAB#3
DAY: SEPTEMBER 25, 2008

1. Exercise 7 from 2.9.

2. Exercise 8 from 2.9

3. Exercise 10 from 2.9

4. Which of the following sets of formulas are satisfiable?

   (a) $\{p \vee q, \neg p \vee q \vee r, \neg p \vee \neg q \vee \neg r\}$

   (b) $\{(p \to q) \vee r, \neg p, q \vee r\}$

5. Determine whether the following formulas are valid (tautologies) or not, using the method of semantic tableaux:

   (a) $((p \to q) \to q) \to q$

   (b) $((p \to q) \to p) \to p$

   (c) $(p \wedge q) \to (p \vee r)$

   (d) $(p \vee \neg(q \wedge r)) \to ((p \leftrightarrow r) \vee q)$

   [**Hint:** a formula A is valid if and only if $\neg A$ is not satisfiable.]