Math 330 (Number Systems), Section 3 (Dmytro Savchuk) Spring 2010 Homework assignment 5 (due Monday, February 22)

## Solve the following problems

- 1. do Project 3.1 (ii),(iv)
- 2. do Project 3.7(i),(iv),(v),(vi)
- 3. Prove that the following statements are tautologies by constructing truth tables
  - (a)  $(A \equiv B) \Rightarrow (A \Rightarrow B)$
  - (b)  $(A \Rightarrow B) \Rightarrow ((A \land C) \Rightarrow (B \land C))$
- 4. Negate the following statements
  - (a)  $(A \equiv B) \Rightarrow (A \Rightarrow B)$
  - (b)  $(A \Rightarrow B) \Rightarrow ((A \land C) \Rightarrow (B \land C))$
  - (c)  $\forall x \exists y [(B \Rightarrow A) \land (\exists z (C \lor \overline{A}))]$