Name (PRINTED): ____________________

Student ID #: ____________________

Section #: ____________________

CMSC 250 Quiz #3 Wednesday, Feb. 8, 2006

1. [16 pnts.] For each of the following, answer the short answer question given.

   a. Explain the truth value relationships between the original statement and the contrapositive of that original statment.

   b. Explain the truth value relationships between the original statement and the converse of that original statment.

   c. Explain how you can tell if an argument is valid by looking at a truth table that has already been created to represent all of the statements involved in the argument.

   d. Would it be possible to have a valid argument whose conclusion is a contradiction (something that is always false)? If yes, explain how. If no, explain why not.

Prove each of the arguments on the next page using only the rules from Chapter 1 (These are the same as the rules on the handout attached). Make sure you are using only those rules. For each line, make sure you tell the statement known to be true, the rule used to get that statement, and the line numbers to which the rule was applied to get that statement.

↓ TURN OVER ↓

2. [7 pnts.]

P1	p
P2	$p \to q$
P3	$\sim q \vee r$
	therefore r

#	Statement	Rule	Lines Used
1			
2			
3			
4			
5			
6			
7			
8			

3. [7 pnts.]

P1	$p \to (r \wedge x)$
P2	$q \to (r \wedge m)$
P3	$p \vee q$
	therefore r

#	Statement	Rule	Lines Used
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			