

- (1) Let p and q be the following propositions: p : I bought a lottery ticket this week.
 q : I won the million dollar jackpot.
Express each of the following propositions as an English sentence:
- i $\neg p \wedge \neg q$

 - ii $p \leftrightarrow q$

 - iii $\neg p \vee (p \wedge q)$
- (2) Write each of the following statements in the form "If p , then q "
- (a) It is necessary to walk eight miles to get to the top of the Long's peak
 - (b) To get tenure as a professor, it is sufficient to be world famous
 - (c) I will remember to send you the address only if you send me an e-mail message.
- (3) Are these system specifications consistent? The router can send packets to the edge system only if it supports the new address. For the router to support the new address, it is necessary that the latest software release be installed. The router can send packets to the edge system if the latest software release is installed. The router does not support the new address.
- (4) In the Knight-Knave scenario, If A says "The two of us are both knights" and B says "A is a knave". Determine conclusively what A and B are