CSE 311 Quiz Section: April 4, 2013

1. A Logic Problem: Knights and Knaves

You are on an island of knights and knaves. Knights always tell the truth and knaves always lie. You encounter two people, A and B. Determine, if possible, what the two people are in each of the problems below.
**Note: Each problem below is separate from the others, don't put them all together and try to solve or it will get way too complicated!

(1) A says, "At least one of us is a knave" and B says nothing.
(2) A says, "The two of us are both knights" and B says, "A is a knave."
(3) A says, "I am a knave or B is a knight" and B says nothing.
(4) Both A and B say "I am a knight."

2. Implication Statements

Express each of these statements in the form "if p, then q" in English.

(1) It snows whenever the wind blows from the northeast.
(2) The apple trees will bloom if it stays warm for a week.
(3) That the Clippers win the championship implies that they beat the Lakers.
(4) It is necessary to walk 8 miles to get to the top of Long's Peak.
(5) To get tenure as a professor, it is sufficient to be world-famous.
(6) Your guarantee is good only if you bought your CD player less than 90 days ago.

3. Verifying Logical Equivalences

Use a truth table to verify the distributive law: $p \wedge (q \vee r) \equiv (p \wedge q) \vee (p \wedge r)$.