Discrete Math
Quiz 8

Name:_____

You have 10 minutes to complete this quiz. If you have a question raise your hand and remain seated. In order to receive full credit your answer must be **complete**, **legible** and **correct**. Show your work, and give adequate explanations.

1. Give examples of English sentences of the form $H \to C$ such that the following properties hold. If no example exists, explain why.

(a) The statement and its converse are both true.

If $\underbrace{\text{Al is taller than Bob}}_{H}$, then $\underbrace{\text{Bob is shorter than Al}}_{C}$.

(b) The statement is true, but the converse is false.

If Al is at least one foot taller than Bob, then Al is at least one inch taller than Bob.

2. Give examples of English sentences of the form $H \to C$ such that the following properties hold. If no example exists, explain why.

(a) The statement is true and its contrapositive is false.

Impossible! Any statement is logically equivalent to its contrapositive, so the two cannot have different truth values.

(b) The contrapositive is true and the converse is false.

If Al is at least one foot taller than Bob, then Al is at least one inch taller than Bob.

(Since any statement is logically equivalent to its contrapositive, this problem is essentially the same as Problem 1(b).)