

**Assignment #1 – Due Friday 9/2 by 5pm**

1. Write a complete truth table for the following propositional-logic statements. Identify whether or not the statement is a tautology.

(a)  $A \rightarrow (B \rightarrow C) \longleftrightarrow A \wedge B \rightarrow C$

(b)  $(A \vee B) \wedge (A \rightarrow C) \wedge (B \rightarrow C) \longleftrightarrow C$

2. Verify each of the following tautological equivalence via a sequence of known tautological equivalences. State the name of each equivalence used.

(a)  $(A \vee (A' \wedge B))' \longleftrightarrow (A \vee B)'$

(b)  $(A \rightarrow B) \wedge (A \rightarrow C) \longleftrightarrow A \rightarrow (B \wedge C)$