Learning Objective Assessment: L1 (version 1)

MATH2603: Discrete Mathematics

L1: I can make a truth table for a compound proposition, determine the truth value of a compound proposition, and determine when two propositions are logically equivalent.

Answer the following questions in the space provided below.

1. Make a truth table for the proposition: $(p \wedge q) \vee (\neg q \wedge r)$.
2. Determine the truth value for each proposition.
   (a) $2 < 5$ and $6 < 4$.
   (b) It is not the case that ($2 < 5$ or $6 < 4$).
   (c) $2 < 5$ or it is not the case that ($4 < 5$ and $6 < 4$).
   (d) $2 < 5$ and it is not the case that ($4 < 5$ implies $6 < 4$).
3. Which pair of the following propositions is logically equivalent.

   a. $p \wedge q$ b. $p \vee \neg q$ c. $\neg q \wedge p$ d. $\neg q \vee \neg p$

Place work in this box. Continue on back if needed.

Criteria for Satisfactory: The truth table for question 1 must be set up correctly; no more than one error may be present. The truth values must be correct for at least three of the four propositions in question 2. Question 3 must be answered correctly.