3.2 Truth Tables
M.Goodroe - Quantitative Skills and Reasoning

Key Terms:
Truth Table
Tautology
Logically Equivalent
DeMorgan's Laws

Name:_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Assuming that p represents a false statement and q represents a true statement, determine the truth value of the following.

1) $p \lor q$

2) $\sim(p \lor q)$

3) $\sim(p \lor \sim q)$

Determine how many lines will be in the truth table for the following statement.

4) $\sim p \lor \sim q$

5) $p \land (\sim q \lor r)$

6) $\sim(p \land q) \land (q \land \sim r)$

7) $\sim(p \lor q) \land (w \land \sim s) \lor (r \lor t) \land (\sim u \land s)$

Construct a truth table for the given compound statement.

8) $\sim q \land \sim s$

9) $(p \land \sim q) \land t$

10) $\sim(r \lor t) \land \sim(t \land r)$

Determine whether the sentence uses the inclusive or or the exclusive or.

11) Study now or study later.

12) The insurance policy will not cover misuse or acts of God.

13) The prize is a new car or $10,000 cash.

Use DeMorgan's Laws to rewrite the negation of the statement.

14) Joaquim has red hair and freckles.

15) The bicycle on sale comes with a free lock and a free helmet.

Determine whether the statements are logically equivalent.

16) $\sim(\sim p \land q), \quad p \lor \sim q$

17) $p \land (\sim q \lor r), \quad (p \land \sim q) \lor (p \land r)$