

0. Print your name: _____

1. Suppose $p = \text{"I love Math"}$, $q = \text{"I study a lot"}$, and $r = \text{"I'll get a good grade."}$ Express in English the meaning of $(p \wedge q) \rightarrow r$.

2. Using a truth table, determine whether or not the propositions $(\neg p) \rightarrow q$ and $(\neg q) \rightarrow p$ are logically equivalent.

3. Suppose the domain of discourse for s is the set of students here at USA and that for c is the set of math classes taught here. Let $L(a, b)$ be the predicate relation "a likes b". Give a normal understandable and colloquial English sentence that embodies the meaning of the mathematical statement: $\exists c [\forall s L(s, c)] \wedge \neg \{\exists s [\forall c L(s, c)]\}$