MATH 11: Introduction to Discrete Structures

Midterm Review

Problem 1. Let p represent the statement "I have coffee" and q represent the statement "I am awake".

Translate the symbolic expressions into plain English.

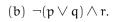
 $(a) \neg p$

(b) $p \wedge q$

 $(c)\ p\vee q$

 $(d)\ q\vee (\neg p)$

Translate the following plain English statements into symbolic language using the symbols p, q, \land, \lor , and
(a) "I have coffee."
(b) "I have coffee and I am awake."
(c) "Either I have coffee or I am awake."
(d) "I am not awake or I do not have coffee."
Problem 2. Construct the truth tables for the following compound statements. $(a) \ \neg (p \lor q).$



(c)
$$p \lor (q \land \neg r)$$
.

Problem 3. Use truth tables to show that the propositions $\neg(p \land \neg q)$ and $\neg p \lor q$ are logically equivalent.