Матн 307	Quiz $\#2$	Spring 2016
Discrete Math	$\S{1.2-1.4}$	29 Jan 16

NAME:

This quiz contains 7 problems worth 30 points. You may not use books, notes, or a calculator. You have 30 minutes to take the quiz.

1. (2 points) Given that p is true, q is true, and r is false, determine the truth value of the proposition $\neg p \lor \neg (q \land r)$

2. (4 points) Write the truth table for the proposition $(p \lor q) \land \neg p$

- 3. (3 points each) Let p be the proposition If x > 1, then x is not a solution.
 - (a) State the converse of p.
 - (b) State the contrapositive of p.

4. (2 points) Negate the proposition If the sky is blue, then the pillow is soft. without using the words "It is not the case that" (Hint: Your answer should include the word *and*.)

- 5. (2 points each) Given that p and q are true, r and s are false. Determine the truth value of each proposition below.
 - (a) $\neg p \rightarrow (q \lor r)$

(b)
$$\neg (p \lor \neg q) \leftrightarrow (r \land s)$$

(c) $p \to (q \to r)$

6. (5 points each) Determine whether each argument below is valid and justify your answer.

(a)
$$\begin{array}{c} p \to (q \lor r) \\ p \land \neg q \\ r \lor q \\ \hline \therefore q \end{array}$$

(b)
$$\begin{array}{c} p \\ p \to q \\ \neg q \lor r \\ \hline \vdots r \end{array}$$