Math 164
Fall, 2009
Quiz 6 - §3.2

Name: **Solutions**

For each of the following problems, assume that p is a false statement and q is a true statement. Circle T if the given statement is true and F if the statement is false. There is no partial credit on this part of the quiz.

1. T F $\sim p$

   Since p is false, its negation is true.

2. T F $p \wedge q$

   Sine we would need both statements to be true for the "and" statement to be true, this is false.

3. T F $\sim p \vee q$

   Since p is false, $\sim p$ is true. So this is an "or" statement with two true statements, hence true.

4. T F $\sim (p \wedge \sim q)$

   Since q is true, $\sim q$ is false. Therefore, inside the parentheses we have an "and" statement consisting of two false statement, making the "and" statement false. Therefore, it's negation is true.

Complete the following problems. Find a truth table for each of the following:

5. $p \wedge \sim q$

p	q	$\sim q$	$p \wedge \sim q$
T	T	F	F
T	F	T	T
F	T	F	F
F	F	T	F

6. $(q \wedge \sim p) \vee \sim q$

p	q	$\sim p$	$q \wedge \sim p$	$\sim q$	$(q \wedge \sim p) \vee \sim q$
T	T	F	F	F	F
T	F	F	F	T	T
F	T	T	T	F	T
F	F	T	F	T	T