Solutions for Quiz #2

September 2, 2003

1. { 6 points } **Use the truth table to determine whether the following argument is valid.**

$$p \to q$$
$$p \to r$$
$$\therefore\ p \to q \wedge r$$

p	q	r	$p \to q$	$p \to r$		$q \wedge r$	$p \to q \wedge r$
T	T	T	**T**	**T**	critical row	T	**T**
T	T	F	T	F		F	F
T	F	T	F	T		F	F
T	F	F	F	F		F	F
F	T	T	**T**	**T**	critical row	T	**T**
F	T	F	**T**	**T**	critical row	F	**T**
F	F	T	**T**	**T**	critical row	F	**T**
F	F	F	**T**	**T**	critical row	F	**T**

Check the appropriate box:

✓ *The argument is valid*

☐ The argument is not valid

Explain: *The conclusion is true ("**T**") on all critical rows.*

2. { 4 points } **Write negations for each of the following statements.**

If today is Thanksgiving, then tomorrow is Friday.

Today is Thanksgiving and tomorrow is not Friday.

If x is nonnegative, then x is positive or x is 0.

x is nonnegative, and x is not positive and x is not 0.

Also acceptable:
x is nonnegative, and it is not the case that x is positive or x is 0.