Math 174, Fall 2003, Solution to Quiz 2

Question: Is the argument

$$p \to q$$
$$q \to p$$
$$\therefore p \vee q$$

valid? Justify your answer. (You will probably want to use a truth table.)

Answer: Here is the truth table:

p	q	$p \to q$	$q \to p$	$p \vee q$	
T	T	T	T	T	
T	F	F	T	T	
F	T	T	F	T	
F	F	T	T	F	★

All the hypotheses are True in rows 1 and 4. However, in row 4, the conclusion is False. This argument is NOT valid.