

## Solution: Quiz 1

1. Determine whether the following argument form is valid or not by using the truth table.

If I am hungry, then I drink milk.

I drink milk.

∴ I am hungry.

**Answer:** Let  $p$  be the statement “I am hungry,” and  $q$  be the statement “I drink milk.” Then

$$p \rightarrow q$$

$$q$$

$$\therefore p$$

Truth table:

$p$	$q$	$p \rightarrow q$	$q$	$p$
T	T	T	T	T
T	F	F	F	
F	T	T	T	F
F	F	T	F	

←-- critical row

←-- critical row: **This has true premises & false conclusion.**

Notice that the columns 3 and 4 consist of the truth values of premises. Since the third row (which is a critical row) has true premises with false conclusion, then this argument is **invalid**.