Practice Problems About Truth Tables.

1. Rewrite each of the following propositions formally and test if any of them are equivalent to any others.

(i) If dragons eat daffodils and mermaids play pinochle, then giants grow geraniums.

(ii) Dragons do not eat daffodils or else mermaids do not play pinochle or else giants do grow geraniums.

(iii) It would be false to say that dragons eat daffodils and mermaids play pinochle and giants do not grow geraniums.

2. Compute the truth table for $(((\neg p) \wedge (q \to r)) \leftrightarrow ((p \vee q) \to (\neg r)))$:

p	q	r	$\neg p$	$\wedge$	$q \to r$	$\leftrightarrow$	$p \vee q$	$\to$	$\neg r$
T	T	T							
T	T	F							
T	F	T							
T	F	F							
F	T	T							
F	T	F							
F	F	T							
F	F	F							

3. Draw a formula tree for the proposition in problem 2.

4. Fill in the following table. (Determine what the boxes stand for.)

p	q	r	$((\square$	$\square$	$(\square))$	$\square$	$((\square$	$\square$	$\square)$	$\square$	$(\square)))$
T	T	T	T	F	F	F	T	T	T	F	F
T	T	F	T	F	F	F	F	T	T	F	F
T	F	T	T	T	T	F	T	T	F	F	F
T	F	F	T	T	T	T	F	F	F	T	F
F	T	T	F	T	F	T	T	T	T	T	T
F	T	F	F	T	F	T	F	T	T	T	T
F	F	T	F	T	T	T	T	T	F	T	T
F	F	F	F	T	T	T	F	F	F	T	T