

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 $((\neg p) \wedge (q \rightarrow r)) \leftrightarrow ((p \vee q) \rightarrow (\neg r))$:

p	q	r	$\neg p$	\wedge	$q \rightarrow r$	\leftrightarrow	$p \vee q$	\rightarrow	$\neg r$
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	$((\square \mid \square \mid (\square)))$	\square	$((\square \mid \square \mid \square) \mid \square \mid (\square))$
T	T	T	T	F	F
T	T	F	T	F	F
T	F	T	T	T	F
T	F	F	T	T	F
F	T	T	F	T	T
F	T	F	F	T	F
F	F	T	F	T	T
F	F	F	F	T	T