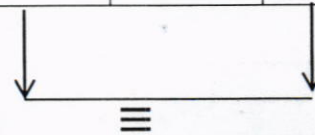


Example:- Show that $(p \vee q) \vee r \equiv p \vee (q \vee r)$ using truth table.

Solution:

p	Q	r	$p \vee q$	$(p \vee q) \vee r$	$q \vee r$	$p \vee (q \vee r)$
T	T	T	T	T	T	T
T	T	F	T	T	T	T
T	F	T	T	T	T	T
T	F	F	T	T	F	T
F	T	T	T	T	T	T
F	T	F	T	T	T	T
F	F	T	F	T	T	T
F	F	F	F	F	F	F



Homework

1. Construct the truth table for $(p \wedge q) \rightarrow (p \vee q)$.
2. Construct the truth table for $p \wedge (\neg q \vee r)$.
3. Construct the truth table for $\neg(p \wedge \neg q)$.
4. Construct the truth table for $(p \wedge q) \wedge \neg(p \vee q)$.
5. Construct the truth table for $\neg p \vee (p \vee q)$.
6. Show that $p \rightarrow q \equiv \neg p \vee q$ using truth table.
7. Show that $[(p \rightarrow q) \wedge (q \rightarrow p)] \equiv (p \leftrightarrow q)$ using truth table.