

1) Find the truth table for  $\sim p \wedge \sim q$

proof:

P	Q	$\sim p$	$\sim q$	$\sim p \wedge \sim q$
T	T	F	F	F
T	F	F	T	F
F	T	T	F	F
F	F	T	T	T

2) Find the truth table for  $\sim(\sim p \vee q)$

proof:

P	Q	$\sim p$	$\sim p \vee q$	$\sim(\sim p \vee q)$
T	T	F	T	F
T	F	F	F	T
F	T	T	T	F
F	F	T	T	F

3) Find the truth table for  $(q \rightarrow p) \rightarrow (p \vee q)$

P	Q	$q \rightarrow p$	$p \vee q$	$(q \rightarrow p) \rightarrow (p \vee q)$
T	T	T	T	T
T	F	T	T	T
F	T	F	T	F
F	F	T	F	F

4) Find the truth table of  $\sim(\sim p \vee q) \wedge (p \vee q)$   
 proof:

P	Q	R	$\sim p$	$\sim p \vee q$	$\sim(\sim p \vee q)$	$p \vee r$	que
T	T	T	F	T	F	T	F
T	T	F	F	T	F	T	F
T	F	T	F	F	T	T	T
F	T	T	T	T	F	T	F
T	F	F	F	F	T	T	T
F	T	F	T	T	F	F	F
F	F	T	T	T	F	T	F
F	F	F	T	T	F	F	F

5) Find the truth table of  $\sim(p \wedge q) \leftrightarrow (\sim p \vee \sim q)$

P	Q	$(p \wedge q)$	$\sim(p \wedge q)$	$\sim p$	$\sim q$	$\sim p \vee \sim q$	que
T	T	T	F	F	F	F	T
T	F	F	T	F	T	T	T
F	T	F	T	T	F	T	T
F	F	F	T	T	T	T	T