

A tautology is a ^{compound.} statement which is true, regardless of the truth values of the statements of which it is composed

reference table 9

$$(p \wedge q) \rightarrow q$$

P	q	$(P \wedge q)$	$(P \wedge q) \rightarrow q$
T	T	T	T
T	F	F	T
F	T	F	T
F	F	F	T

This is a tautology
Because they are all true

reference table 10

$$(\sim p \vee q) \rightarrow \sim(p \wedge q)$$

p	q	$\sim p$	$(\sim p \vee q)$	$(p \wedge q)$	$\sim(p \wedge q)$	$(\sim p \vee q) \rightarrow \sim(p \wedge q)$
T	T	F	T	T	F	F
T	F	F	F	F	T	T
F	T	T	T	F	T	T
F	F	T	T	F	T	T

Not a tautology
Since the 1st Row is F

Reference table II

$$(p \wedge q) \rightarrow (p \rightarrow q)$$

p	q	$(p \wedge q)$	$(p \rightarrow q)$	$(p \wedge q) \rightarrow (p \rightarrow q)$
T	T	T	T	T
T	F	F	F	T
F	T	F	T	T
F	F	F	T	T

tautology

Reference table 12

$$\sim(p \vee \sim q) \rightarrow (\sim p \vee \sim q)$$

p	q	$\sim p$	$\sim q$	$(p \vee \sim q)$	$\sim(p \vee \sim q)$	$(\sim p \vee \sim q)$	$\sim(p \vee \sim q) \rightarrow (\sim p \vee \sim q)$
T	T	F	F	T	F	F	T
T	F	F	T	T	F	T	T
F	T	T	F	F	T	T	T
F	F	T	T	T	F	T	T

tautology

O.T.L.

① pg 22.

Exploratory: 1, 5, 9, 11, 13, 15

Written: 1, 3, 5, 7

② Use a Truth Table to
find Tautology.

$$p \rightarrow (p \vee q)$$