

1. $(A \rightarrow C) \rightarrow B \wedge (C' \rightarrow A') \wedge A'$ — HYPOTHESIS
 2. $A \rightarrow (C \rightarrow B) \wedge (C' \rightarrow A') \wedge A'$ — ASSOCIATIVE
 3. $A \wedge (C \rightarrow B) \wedge (C' \rightarrow A') \wedge A'$ — DEDUCTIVE
 4. $A \wedge (B' \rightarrow C') \wedge (C' \rightarrow A') \wedge A'$ — CONTRA POSITIVE
 5. $(B' \rightarrow C') \wedge A'$ — SIMPLIFICATION
 6. $(B'' \vee C') \wedge A'$ — IMPLICATION
 7. $(B'' \wedge C') \wedge A'$ — WEAKEN
 8. $B'' \wedge A'$ — SIMPLIFICATION
 9. $A' \wedge B''$ — COMMUTATIVE
 10. $(A \vee B')'$ — De MORGANS LAW
- Not a tautology

2.

2. not a tautology

A	B	C	B'	C'	$A \vee B$	$C' \wedge (A \vee B)$	$C' \wedge (A \vee B) \rightarrow C$	$A \rightarrow C$	$(A \rightarrow C) \wedge B'$	$C' \wedge (A \vee B) \rightarrow C \rightarrow (A \rightarrow C) \wedge B'$
T	T	T	F	F	T	F	T	T	F	F
T	T	F	F	T	T	T	F	F	F	T
T	F	T	T	F	T	F	T	T	T	T
T	F	F	T	T	T	T	F	F	F	T
F	T	T	F	F	T	F	T	T	F	F
F	T	F	T	T	T	T	F	T	F	T
F	F	T	T	F	F	F	T	T	T	T
F	F	F	T	T	T	F	T	T	T	T

3.

where $P \rightarrow Q$, This is a tautology

A	B	C	P	Q
T	T	T	T	T
T	T	F	F	F
T	F	T	T	T
T	F	F	T	T
F	T	T	T	T
F	T	F	T	T
F	F	T	T	T
F	F	F	T	T

5.

where $P \rightarrow Q$, This is a Tautology

A	B	C	D	P	Q
T	T	T	T	F	T
T	T	T	F	T	T
T	T	F	T	T	T
T	T	F	F	T	T
T	F	T	T	F	T
T	F	T	F	T	T
T	F	F	T	F	T
T	F	F	F	F	T
F	T	T	T	F	F
F	T	T	F	F	T
F	T	F	T	T	T
F	T	F	F	T	T
F	F	T	T	F	F
F	F	F	F	T	T
F	F	F	T	F	T
F	F	F	F	F	T

6. Not a Tautology

A	B	C	D	A'	D'	$(A \& C) \rightarrow B \& (B \rightarrow D) \& C \& D'$	$(A \& B) \rightarrow B \& (B \rightarrow D) \& C \& D' \rightarrow A'$
T	T	T	T	F	F	F	T
T	T	T	F	F	T	F	T
T	T	F	T	F	F	T	F
T	T	F	F	F	T	F	T
T	F	T	T	F	F	F	T
T	F	T	F	F	T	F	T
T	F	F	T	F	F	T	F
T	F	F	F	F	T	F	T
F	T	T	T	T	F	T	T
F	T	T	F	T	T	T	T
F	T	F	T	T	F	T	T
F	T	F	F	T	T	T	T
F	F	T	T	T	F	T	T
F	F	T	F	T	T	T	T
F	F	F	T	T	F	T	T
F	F	F	F	T	T	T	T

