Theorem (Summary of Useful Logical Equivalencies)

De Morgan's Law:	$\neg(P \wedge Q) \equiv \neg P \vee \neg Q$ $\neg(P \vee Q) \equiv \neg P \wedge \neg Q$
Contrapositive:	$P \Rightarrow Q \equiv \neg Q \Rightarrow \neg P$
Conditional as a Disjunction:	$P \Rightarrow Q \equiv \neg P \vee Q$
Negation of a Conditional:	$\neg(P \Rightarrow Q) \equiv P \wedge \neg Q$
Double Negation:	$\neg(\neg P) \equiv P$
Idempotent:	$P \vee P \equiv P \equiv P \wedge P$
Commutativity:	$P \wedge Q \equiv Q \wedge P$ $P \vee Q \equiv Q \vee P$
Associativity:	$(P \wedge Q) \wedge R \equiv P \wedge (Q \wedge R)$ $(P \vee Q) \vee R \equiv P \vee (Q \vee R)$
Distribution:	$P \wedge (Q \vee R) \equiv (P \wedge Q) \vee (P \wedge R)$ $P \vee (Q \wedge R) \equiv (P \vee Q) \wedge (P \vee R)$
Disjunction with a Contradiction:	*If* C *is always false, then* $P \vee C \equiv P$
Conditional with a Disjunction:	$P \Rightarrow (Q \vee R) \equiv (P \wedge \neg Q) \Rightarrow R$ $(P \vee Q) \Rightarrow R \equiv (P \Rightarrow R) \wedge (Q \Rightarrow R)$