Math 2534

Table of Logical Equivalences

Commutative Laws	$p \wedge q \equiv q \wedge p$	$p \vee q \equiv q \vee p$
Associative Laws	$(p \wedge q) \wedge r \equiv p \wedge (q \wedge r)$	$(p \vee q) \vee r \equiv p \vee (q \vee r)$
Distributive Laws	$p \wedge (q \vee r) \equiv (p \wedge q) \vee (p \wedge r)$	$p \vee (q \wedge r) \equiv (p \vee q) \wedge (p \vee r)$
Identity Laws	$p \wedge \mathbf{T} \equiv p$	$p \vee \mathbf{F} \equiv p$
Negation Laws	$p \vee \sim p \equiv \mathbf{T}$	$p \wedge \sim p \equiv \mathbf{F}$
Double Negative Laws	$\sim (\sim p) \equiv p$	
Idempotent Laws	$p \wedge p \equiv p$	$p \vee p \equiv p$
Universal Bound Laws	$p \vee \mathbf{T} \equiv \mathbf{T}$	$p \wedge \mathbf{F} \equiv \mathbf{F}$
De Morgan's Laws	$\sim (p \wedge q) \equiv \sim p \vee \sim q$	$\sim (p \vee q) \equiv \sim p \wedge \sim q$
Absorption Laws	$p \vee (p \wedge q) \equiv p$	$p \wedge (p \vee q) \equiv p$
Negation of $\mathbf{T}$ and $\mathbf{F}$	$\sim \mathbf{T} \equiv \mathbf{F}$	$\sim \mathbf{F} \equiv \mathbf{T}$