Logical Equivalences

Know These:

$P \wedge T \equiv P$	Identity
$P \vee F \equiv P$	
$P \vee T \equiv T$	Domination
$P \wedge F \equiv F$	
$P \vee P \equiv P$	Idempotency
$P \wedge P \equiv P$	
$\neg(\neg P) \equiv P$	Double negation
$P \vee Q \equiv Q \vee P$	Commutativity
$P \wedge Q \equiv Q \wedge P$	
$(P \vee Q) \vee R \equiv P \vee (Q \vee R)$	Associativity
$(P \wedge Q) \wedge R \equiv P \wedge (Q \wedge R)$	
$(P \rightarrow Q) \wedge (Q \rightarrow P) \equiv (P \leftrightarrow Q)$	Equivalence
$(P \rightarrow Q) \equiv (\neg Q \rightarrow \neg P)$	Contrapositive
$\neg(P \wedge Q) \equiv \neg P \vee \neg Q$	DeMorgan's laws
$\neg(P \vee Q) \equiv \neg P \wedge \neg Q$	
$P \rightarrow Q \equiv \neg P \vee Q$	Implication

$P \wedge (Q \vee R) \equiv (P \wedge Q) \vee (P \wedge R)$	Distributivity
$P \vee (Q \wedge R) \equiv (P \vee Q) \wedge (P \vee R)$	
$(P \rightarrow Q) \wedge (P \rightarrow \neg Q) \equiv \neg P$	Absurdity
$P \vee (P \wedge Q) \equiv P$	Absorption
$P \wedge (P \vee Q) \equiv P$	
$(P \wedge Q) \rightarrow R \equiv P \rightarrow (Q \rightarrow R)$	Exportation