Laws of Logic

1.	$\neg\neg p \equiv p$	Law of Double Negation
2.	$\neg(p \vee q) \equiv \neg p \wedge \neg q$ $\neg(p \wedge q) \equiv \neg p \vee \neg q$	DeMorgan's Law
3.	$p \vee q \equiv q \vee p$ $p \wedge q \equiv q \wedge p$	Commutative Laws
4.	$p \vee (q \vee r) \equiv (p \vee q) \vee r$ $p \wedge (q \wedge r) \equiv (p \wedge q) \wedge r$	Associative Laws
5.	$p \vee (q \wedge r) \equiv (p \vee q) \wedge (p \vee r)$ $p \wedge (q \vee r) \equiv (p \wedge q) \vee (p \wedge r)$	Distributive Laws
6.	$p \vee p \equiv p$ $p \wedge p \equiv p$	Idempotent Laws
7.	$p \vee \mathbb{F} \equiv p$ $p \wedge \mathbb{T} \equiv p$	Identity Laws
8.	$p \vee \neg p \equiv \mathbb{T}$ $p \wedge \neg p \equiv \mathbb{F}$	Inverse Laws
9.	$p \vee \mathbb{T} \equiv \mathbb{T}$ $p \wedge \mathbb{F} \equiv \mathbb{F}$	Domination Laws
10.	$p \vee (p \wedge q) \equiv p$ $p \wedge (p \vee q) \equiv p$	Absorption Laws
11.	$p \to q \equiv \neg p \vee q$	Implication Identity
12.	$p \to q \equiv \neg q \to \neg p$	Contrapositive

Rule of Inference

1.	$[p \wedge (p \to q)] \Rightarrow q$	Rule of Detachment (Modus Ponens)
2.	$[(p \to q) \wedge (q \to r)] \Rightarrow (p \to r)$	Law of Syllogism
3.	$[(p \to q) \wedge \neg q] \Rightarrow \neg p$	Modus Tollens
4.	$[(p) \wedge (q)] \Rightarrow p \wedge q$	Rule of Conjunction
5.	$[(p \vee q) \wedge \neg p] \Rightarrow q$	Rule of Disjunctive Syllogism
6.	$(\neg p \to \mathbb{F}) \Rightarrow p$	Rule of Contradition
7.	$p \wedge q \Rightarrow p$	Rule of Conjunctive Simplification
8.	$p \Rightarrow p \vee q$	Rule of Disjunctive Amplification
9.	$[(p \wedge q) \wedge [p \to (q \to r)]] \Rightarrow r$	Rule of Conditional Proof
10.	$[(p \to r) \wedge (q \to r)] \Rightarrow [(p \vee q) \to r]$	Proof by Cases
11.	$[(p \to q) \wedge (r \to s) \wedge (p \vee r)] \Rightarrow (q \vee s)$	Rule of the Constructive Dilemma
12.	$[(p \to q) \wedge (r \to s) \wedge (\neg q \vee \neg s)] \Rightarrow (\neg p \vee \neg r)$	Rule of the Destructive Dilemma

Laws of Set Theory

1.	$\overline{\overline{A}} = A$	Law of Double Negation
2.	$\overline{A \cup B} = \overline{A} \cap \overline{B}$ $\overline{A \cap B} = \overline{A} \cup \overline{B}$	DeMorgan's Law
3.	$A \cup B = B \cup A$ $A \cap B = B \cap A$	Commutative Laws
4.	$A \cup (B \cup C) = (A \cup B) \cup C$ $A \cap (B \cap C) = (A \cap B) \cap C$	Associative Laws
5.	$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$	Distributive Laws
6.	$A \cup A = A$ $A \cap A = A$	Idempotent Laws
7.	$A \cup \emptyset = A$ $A \cap \mathcal{U} \equiv A$	Identity Laws
8.	$A \cup \overline{A} = \mathcal{U}$ $A \cap \overline{A} = \emptyset$	Inverse Laws
9.	$A \cup \mathcal{U} = \mathcal{U}$ $A \cap \emptyset = \emptyset$	Domination Laws
10.	$A \cup (A \cap B) = A$ $A \cap (A \cup B) = A$	Absorption Laws