Laws of Logic

L1.	$\neg\neg p \Leftrightarrow p$	Law of Double Negation
L2.	$\neg(p \vee q) \Leftrightarrow \neg p \wedge \neg q$ $\neg(p \wedge q) \Leftrightarrow \neg p \vee \neg q$	DeMorgan's Laws
L3.	$p \vee q \Leftrightarrow q \vee p$ $p \wedge q \Leftrightarrow q \wedge p$	Commutative Laws
L4.	$p \vee (q \vee r) \Leftrightarrow (p \vee q) \vee r$ $p \wedge (q \wedge r) \Leftrightarrow (p \wedge q) \wedge r$	Associative Laws
L5.	$p \vee (q \wedge r) \Leftrightarrow (p \vee q) \wedge (p \vee r)$ $p \wedge (q \vee r) \Leftrightarrow (p \wedge q) \vee (p \wedge r)$	Distributive Laws
L6.	$p \vee p \Leftrightarrow p$ $p \wedge p \Leftrightarrow p$	Idempotent Laws
L7.	$p \vee F_0 \Leftrightarrow p$ $p \wedge T_0 \Leftrightarrow p$	Identity Laws
L8.	$p \vee \neg p \Leftrightarrow T_0$ $p \wedge \neg p \Leftrightarrow F_0$	Inverse Laws
L9.	$p \vee T_0 \Leftrightarrow T_0$ $p \wedge F_0 \Leftrightarrow F_0$	Domination Laws
L10.	$p \vee (p \wedge q) \Leftrightarrow p$ $p \wedge (p \vee q) \Leftrightarrow p$	Absorption Laws
L11.	$p \leftrightarrow q \Leftrightarrow (p \rightarrow q) \wedge (q \rightarrow p)$	
L12.	$p \rightarrow q \Leftrightarrow \neg p \vee q$	
L13.	$p \rightarrow q \Leftrightarrow \neg q \rightarrow \neg p$	

$\exists x \in m\ \forall x \in n\ [$ y=0 $]$

Rules of Inference

R1.	p $p \rightarrow q$ $\therefore q$	Modus Ponens
R2.	$p \rightarrow q$ $q \rightarrow r$ $\therefore p \rightarrow r$	Law of the Syllogism
R3.	$p \rightarrow q$ $\neg q$ $\therefore \neg p$	Modus Tollens
R4.	p q $\therefore p \wedge q$	Rule of Conjunction
R5.	$p \vee q$ $\neg p$ $\therefore q$	Rule of Disjunctive Syllogism
R6.	$\neg p \rightarrow F_0$ $\therefore p$	Rule of Contradiction
R7.	$p \wedge q$ $\therefore p$	Rule of Conjunctive Simplification
R8.	p $\therefore p \vee q$	Rule of Disjunctive Amplification
R9.	$p \wedge q$ $p \rightarrow (q \rightarrow r)$ $\therefore r$	Rule of Conditional Proof
R10.	$p \rightarrow r$ $q \rightarrow r$ $\therefore (p \vee q) \rightarrow r$	Rule for Proof by Cases
R11.	$p \rightarrow q$ $r \rightarrow s$ $p \vee r$ $\therefore (q \vee s)$	Rule of the Constructive Dilemma
R12.	$p \rightarrow q$ $r \rightarrow s$ $\neg q \vee \neg s$ $\therefore \neg p \vee \neg r$	Rule of the Destructive Dilemma

Aanvullende wetten m.b.t. quantoren

N1. $\neg[\forall x\ p(x)] \quad \Leftrightarrow \quad \exists x\ \neg p(x)$

N2. $\neg[\exists x\ p(x)] \quad \Leftrightarrow \quad \forall x\ \neg p(x)$

Aanvullende afleidingsregels m.b.t. quantoren

U1. $\dfrac{\forall x\ p(x)}{\therefore p(c)}$ voor een willekeurige c in het universum

U2. $\dfrac{\exists x\ p(x)}{\therefore p(c)}$ voor een zekere c in het universum

U3. $\dfrac{p(c)}{\therefore \forall x\ p(x)}$ voor een willekeurige c in het universum

U4. $\dfrac{p(c)}{\therefore \exists x\ p(x)}$ voor een zekere c in het universum

U1: Rule of Universal Specification

U2: Rule of Existential Specification

U3: Rule of Universal Generalization

U4: Rule of Existential Generalization