

$A \wedge T = A$	} Identity	$A \cap U = A$
$A \vee F = A$		$A \cup \emptyset = A$
$A \vee T = T$	} Domination	$A \cup U = U$
$A \wedge F = F$		$A \cap \emptyset = \emptyset$
$A \wedge A = A$	} Idempotence	$A \cap A = A$
$A \vee A = A$		$A \cup A = A$
$A \vee \neg A = T$	} Negation / Complement	$A \cup \bar{A} = U$
$A \wedge \neg A = F$		$A \cap \bar{A} = \emptyset$
$\neg(\neg A) = A$	} Double Negation	$\bar{\bar{A}} = A$
$\neg(A \wedge B) = \neg A \vee \neg B$	} DeMorgan's Law	$\overline{A \cap B} = \bar{A} \cup \bar{B}$
$\neg(A \vee B) = \neg A \wedge \neg B$		$\overline{A \cup B} = \bar{A} \cap \bar{B}$
$A \wedge B = B \wedge A$	} Commutativity	$A \cap B = B \cap A$
$A \vee B = B \vee A$		$A \cup B = B \cup A$
$(A \wedge B) \wedge C = A \wedge (B \wedge C)$	} Associativity	$(A \cap B) \cap C = A \cap (B \cap C)$
$(A \vee B) \vee C = A \vee (B \vee C)$		$(A \cup B) \cup C = A \cup (B \cup C)$
$A \vee (B \wedge C) = (A \vee B) \wedge (A \vee C)$	} Distributivity	$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$
$A \wedge (B \vee C) = (A \wedge B) \vee (A \wedge C)$		$A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$
$A \wedge (A \vee B) = A$	} Absorption	$A \cap (A \cup B) = A$
$A \vee (A \wedge B) = A$		$A \cup (A \cap B) = A$
$A \rightarrow B = \neg A \vee B = \neg B \rightarrow \neg A$	} other equivalences	$A \oplus B = (A \vee B) \wedge \neg(A \wedge B)$
$A \leftrightarrow B = (A \rightarrow B) \wedge (B \rightarrow A)$		$A - B = A \cap \bar{B}$

p	} Addition	$p \wedge q$	} Simplification
$\therefore p \vee q$		$\therefore p$	
p	} Conjunction	$p \vee q$	} Resolution
q		$\neg p \vee r$	
$\therefore p \wedge q$		$\therefore q \vee r$	
p	} Modus Ponens	$\neg q$	} Modus Tollens
$p \rightarrow q$		$p \rightarrow q$	
$\therefore q$		$\therefore \neg p$	
$\neg p$	} Disjunctive Syllogism	$p \rightarrow q$	} Hypothetical Syllogism
$p \vee q$		$q \rightarrow r$	
$\therefore q$		$\therefore p \rightarrow r$	

$$\sum_{i=1}^n i = \frac{n(n+1)}{2}$$

$$\sum_{i=1}^n i^2 = \frac{n(n+1)(2n+1)}{6}$$

$$\sum_{i=1}^n k = kn$$

$$\sum_{i=0}^n ax^i = a \frac{x^{n+1} - 1}{x - 1}$$

$f(n)$ is $O(g(n)) \leftrightarrow f(n) \leq cg(n), \forall n \geq k \leftrightarrow \lim_{n \rightarrow \infty} f(n)/g(n) \leq c$ (for constants $c, d > 0$)

$f(n)$ is $\Omega(g(n)) \leftrightarrow f(n) \geq cg(n), \forall n \geq k \leftrightarrow \lim_{n \rightarrow \infty} f(n)/g(n) \geq c$ (for constants $c, d > 0$)

$f(n)$ is $\Theta(g(n)) \leftrightarrow f(n)$ is $O(g(n)) \wedge f(n)$ is $\Omega(g(n))$