5.9: Chapter Review

Summary:

Operation	Notation	Summary of truth values
Negation	$\sim p$	The opposite truth value of p
Conjunction	$p \wedge q$	True only when both p and q are true
Disjunction	$p \vee q$	False only when both p and q are false
Conditional	$p \rightarrow q$	False only when p is true and q is false
Biconditional	$p \leftrightarrow q$	True only when both p and q are true or both are false

Notations & Definitions:

- Negation: $\sim$ or "**not**"
- Conjunction: $\wedge$ or "**and**"
- Disjunction: $\vee$ or "**or**"
- Conditional: $\rightarrow$ or "**implies**" or "**if/then**"
- Biconditional: $\leftrightarrow$ or "**if and only if**" or "**iff**"
- Counter-example: An example that disproves a mathematical proposition or statement.
- Logically Equivalent: $\equiv$ Two propositions that have the same truth table result.
- Tautology: A statement that is always true, and a truth table yields only true results.
- Contradiction: A statement which is always false, and a truth table yields only false results.