

Important Rules of Inference

1. $p \rightarrow (p \vee q)$ Addition
2. $(p \wedge q) \rightarrow p$ Simplification
3. $\left. \begin{array}{l} p \\ q \end{array} \right\} \rightarrow p \wedge q$ Conjunction
4. $[p \wedge (p \rightarrow q)] \rightarrow q$ Modus Ponens
5. $[\neg q \wedge (p \rightarrow q)] \rightarrow \neg p$ Modus Tollens
6. $[(p \rightarrow q) \wedge (q \rightarrow r)] \rightarrow (p \rightarrow r)$ Transitivity
7. $[(p \vee q) \wedge \neg p] \rightarrow q$ Syllogism
8. $[(p \vee q) \wedge (\neg p \vee r)] \rightarrow (q \vee r)$ Resolution