Math 300

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1 Chapter 1

1.1 Introduction/ 1/17/2024

- Proposition
  - A sentence with a truth value
  - Ask: "Is it true that..."
- Equivalace
  - 2 propositions that have the same truth value
  - is $P \equiv Q$
- Logical Connectives
  - Negation : $\sim P$
    - It is NOT P, it is true only when P is false
  - Conjuction
    - true when P and Q are true
    - $P \wedge Q$
  - Disjunction
    - true when either P and Q are true
    - $P \vee Q$
- DeMorgan's Laws
  - $\sim (P \wedge Q) \equiv (\sim P) \vee (\sim Q)$
  - $\sim (P \vee Q) \equiv (\sim P) \wedge (\sim Q)$
  - $\sim (P \Rightarrow Q) \equiv P \wedge (\sim Q)$
- Tautology
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