

Logic 1, WS 2012. Homework 2, given Oct 25, due Nov 8

1. Prove the following equivalence by reducing both sides to CNF:

$$(A \wedge B) \Rightarrow C \equiv (A \Rightarrow C) \vee (B \Rightarrow C).$$

2. Write equivalences for formulae with \Rightarrow and \Leftrightarrow containing truth constants.
3. Define the truth value of a conjunctive set $(\wedge \mathcal{S})$ and find the truth value when the set is empty.
4. Prove by refutation, CNF, and resolution:

$$(A \wedge B) \Rightarrow C \models (A \Rightarrow C) \vee (B \Rightarrow C).$$