Definitions

1. Define the following: the model of a Γ set.
2. Define the following: the model of a formula.
3. Define the following: the satisfiable set of formulas.
4. Define the following: the satisfiable formula
5. Define the following: unsatisfiable set
6. Define the following: unsatisfiable formula
7. Define the following: logical consequence
8. Define the following: valid formula.
9. Define the following: logical equivalence

Practical exercises

10. Prove the equivalence: $p \supset q \Leftrightarrow \neg p \vee q$.
11. Prove the equivalence: $p \supset q \Leftrightarrow \neg q \supset p$.
12. Prove the equivalence: $\neg(p \wedge q) \Leftrightarrow \neg p \vee q$.
13. Prove the equivalence: $\neg(p \vee q) \Leftrightarrow \neg p \wedge q$.
14. Are the following formula valid: $p \supset q \supset \neg p \vee q$?
15. Are the following formula valid: $p \supset q \supset \neg q \supset p$?
16. Are the following formula valid: $\neg(p \wedge q) \supset \neg p \vee q$?
17. Are the following formula valid: $\neg(p \vee q) \supset \neg p \wedge q$?
18. Is q the logical consequence of $\neg q \supset p$ and $q \vee \neg p$?
19. Is q the logical consequence of $q \vee \neg p$ and $\neg q \supset \neg p$?
20. What is the DNF and CNF of $\neg(q \supset p) \wedge r$
21. What is the DNF and CNF of $(q \equiv p) \wedge r$