Logic and Foundations I, Autumn 2023

Homework No.8
Due: 2023.11.20
Name:

Problem 1
Let T be a $\forall\exists$ theory, and φ_1, φ_2 be $\forall\exists$ sentences. Now, suppose any model $\mathfrak{A}$ of T can be extended to a model of $T \cup \{\varphi_1\}$ and a model of $T \cup \{\varphi_2\}$. Then show that any model $\mathfrak{A}$ of T can be extended to $T \cup \{\varphi_1, \varphi_2\}$.
Solution:

Problem 2
In a model-complete theory, show that for every formula, there exists an equivalent $\forall$ formula. (Hint. See the proof of (1)$\Rightarrow$(2) in the Łoś-Tarski theorem.)
Solution: