Logics and Mathematics – 3rd lecture Exercise sheet

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Problem 1 Give the truth tables for the following formulas: (1) $(A \land B) \to C$ (2) $A \to (B \to A)$ (3) $(A \to (B \to C)) \to ((A \to B) \to (A \to C))$

Problem 2 Give the negation of the following formula, and move the negation side as far inside as possible: $\forall x \in A \exists y \in B : P(x, y)$

Problem 3 Prove the following formula (A, B, C are sets): $A \subseteq B \land B \subseteq C \rightarrow A \subseteq C$

Problem 4 If is a natural number $n \ge 4$, then not all factors of $\{n, n + 2, n + 4\}$ are prime numbers.