Exercise 5.1 Prove that the axioms of classical logic

(C1)  \( A \to (B \to A) \)
(C2)  \( (A \to (B \to C)) \to ((A \to B) \to (A \to C)) \)
(C3)  \( (\neg A \to \neg B) \to (B \to A) \)

are tautologies.