Theorem (2.2.18b)**.** *Let A, B and C be sets.* $(A \cap B \cap C) \subseteq (A \cap B)$.

Proof. Let x be an element in $(A \cap B \cap C)$. The definition of this expression is $(x \in A) \wedge (x \in B) \wedge (x \in C)$. From that, obviously $(x \in A) \wedge (x \in B)$, being the definition for $(A \cap B)$. It necessarily follows that $(A \cap B \cap C) \subseteq (A \cap B)$. ■