Theorem (2.2.8b)**.** *Let A be a set. A is idempotent such that $A \cap A = A$.*

Proof. Let x be an element in $A \cap A$. By the definition for set intersection we have $(x \in A) \wedge (x \in A)$. The logical idempotent law says $(x \in A) \wedge (x \in A) \equiv (x \in A)$. That is the definition of $A \cap A = A$. Thus proves the idempotent law for the intersection of sets. ∎