Theorem (2.2.10a)**.** *Let A be a set. $A - \emptyset = A$.*

Proof. Let x be an element in $A - \emptyset \equiv A \cap \overline{\emptyset}$. By definition we have, $(x \in A) \wedge (x \notin \emptyset)$. Because by supposition $\exists x(x \in (A - \emptyset))$, we know that the statement $(x \notin \emptyset)$ must be true. Therefore, by logical identity, the statement $x \in (A - \emptyset)$ is defined as $x \in A$. So $A - \emptyset = A$. ■