

1 Assignment

Prove the following theorem **by contradiction**.

Theorem 1. *Let A and B be sets. Then $A \cap (B - A) = \emptyset$.*

Hint: proof by contradiction

Proof. Let A and B be sets. Suppose for a contradiction that $A \cap (B - A)$ has at least one element, call it x .

Then by definition $x \in A$ and $x \in B - A$. But by the definition of set minus, $x \notin A$. Since x cannot be in A and not in A simultaneously, we have reached a contradiction. \square