Review: Use an element argument to prove:

- sets $A, B$, if $A \cap B$, $P(A) \cap P(B)$

ex. Let $S = \{a, b, c\}$ and let $S_a$ be the set of all subsets of $S$ that contain $a$, let $S_b$ be the set of all subsets of $S$ that contain $b$, let $S_c$ be the set of all subsets of $S$ that contain $c$, and let $S_{\cup}$ be the set whose only element is $\cup$. Is $\{S_a, S_b, S_c, S_{\cup}\}$ a partition of $P(S)$?
ex. sets $A, B$, $A \setminus (A \cap B) = A \setminus B$

ex. sets $A, B, C$, $(A \setminus B) \setminus C = (A \setminus C) \setminus B$
ex.

Sets $A,B,C$, $(A \uplus B) \cup (B \uplus A) = (A \cup B) \uplus (A \cap B)$
Derive the following:

For all sets A and B, \( A \triangle (A \triangle B) = A \cap B \)

Do: Simplify: \( A \cap ((B \cup A^c) \cap B^c) \)