Writing Assignment 5

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Foundations of Mathematics

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Theorem 3.10. Suppose that A, B and C are sets. If $A \subseteq B$ and $B \subseteq C$ then $A \subseteq C$.

Proof. Let A, B, and C be sets. Let $x \in A$. Since $A \subseteq B$ and $x \in A$, $x \in B$. Similarly, $B \subseteq C$ so $x \in C$. Therefore if $(A \subseteq B) \cap (B \subseteq C)$ then $A \subseteq C$. □

Theorem 3.21b. If A and B are sets, then $(A \cap B)^c = A^c \cup B^c$.

Proof. Let A and B be sets. To show $(A \cap B)^c = A^c \cup B^c$, we must show that $(A \cap B)^c \subseteq A^c \cup B^c$ and $A^c \cup B^c \subseteq (A \cap B)^c$. Firstly, Let $x \in (A \cap B)^c$. It follows that $x \in A^c \cup B^c$ by definition 3.14. Secondly, let $x \in A^c \cup B^c$. It follows that $x \in (A \cap B)^c$ by definition 3.14. □

$clearly my 3.21 edit sare lacking a connection between " firstly " and " it follows " so ask jeb after class$