[11-04-02B-T11]
Sets

■ **You should be able to prove all of the following.**

Table 1-1 Laws of Operations with Sets

(1.1)	$(A')' = A$	
(1.2)	$\emptyset' = U$	(1.2′) $U' = \emptyset$
(1.3)	$A - A = \emptyset$, $A - \emptyset = A$, $A - B = A \cap B'$	
(1.4)	$A \cup \emptyset = A$	(1.4′) $A \cap U = A$
(1.5)	$A \cup U = U$	(1.5′) $A \cap \emptyset = \emptyset$
(1.6)	$A \cup A = A$	(1.6′) $A \cap A = A$
(1.7)	$A \cup A' = U$	(1.7′) $A \cap A' = \emptyset$
	Associative Laws	
(1.8)	$(A \cup B) \cup C = A \cup (B \cup C)$	(1.8′) $(A \cap B) \cap C = A \cap (B \cap C)$
	Commutative Laws	
(1.9)	$A \cup B = B \cup A$	(1.9′) $A \cap B = B \cap A$
	Distributive Laws	
(1.10)	$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$	(1.10′) $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$
	De Morgan's Laws	
(1.11)	$(A \cup B)' = A' \cap B'$	(1.11′) $(A \cap B)' = A' \cup B'$
(1.12)	$A - (B \cup C) = (A - B) \cap (A - C)$	(1.12′) $A - (B \cap C) = (A - B) \cup (A - C)$