Table 4.2.1 Basic Laws of Set Theory

Commutative Laws	
(1) $A \cup B = B \cup A$	(1′) $A \cap B = B \cap A$
Associative Laws	
(2) $A \cup (B \cup C) = (A \cup B) \cup C$	(2′) $A \cap (B \cap C) = (A \cap B) \cap C$
Distributive Laws	
(3) $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$	(3′) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$
Identity Laws	
(4) $A \cup \emptyset = \emptyset \cup A = A$	(4′) $A \cap U = U \cap A = A$
Complement Laws	
(5) $A \cup A^c = U$	(5′) $A \cap A^c = \emptyset$
Idempotent Laws	
(6) $A \cup A = A$	(6′) $A \cap A = A$
Null Laws	
(7) $A \cup U = U$	(7′) $A \cap \emptyset = \emptyset$
Absorption Laws	
(8) $A \cup (A \cap B) = A$	(8′) $A \cap (A \cup B) = A$
DeMorgan's Laws	
(9) $(A \cup B)^c = A^c \cap B^c$	(9′) $(A \cap B)^c = A^c \cup B^c$
Involution Law	
(10) $(A^c)^c = A$	