Theorem 6.2.1 — Subset Relations (Epp page 264)

Given any sets A, B, and C, the following rules hold:

Inclusion for intersection:	$A \cap B \subseteq A$	$A \cap B \subseteq B$
Inclusion for union:	$A \subseteq A \cup B$	$B \subseteq A \cup B$
Transitive property for subsets:	$[(A \subseteq B) \wedge (B \subseteq C)] \rightarrow (A \subseteq C)$	

Theorem 6.2.2 — Set Identities (Epp page 267)

Given any sets A, B, and C that are subsets of a universal set U, the following equalities hold:

Commutative laws:	$A \cap B = B \cap A$	$A \cup B = B \cup A$
Associative laws:	$(A \cap B) \cap C = A \cap (B \cap C)$	$(A \cup B) \cup C = A \cup (B \cup C)$
Distributive laws:	$A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$	$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$
Identity laws:	$A \cap U = A$	$A \cup \emptyset = A$
Complement laws:	$A \cup A^c = U$	$A \cap A^c = \emptyset$
Double complement law:	$(A^c)^c = A$	
Idempotent laws:	$A \cap A = A$	$A \cup A = A$
Universal bound laws:	$A \cup U = U$	$A \cap \emptyset = \emptyset$
De Morgan's laws:	$(A \cap B)^c = A^c \cup B^c$	$(A \cup B)^c = A^c \cap B^c$
Absorption laws:	$A \cup (A \cap B) = A$	$A \cap (A \cup B) = A$
Complements of U and $\emptyset$:	$U^c = \emptyset$	$\emptyset^c = U$
Set Difference Law:	$A - B = A \cap B^c$	

Theorem 6.2.3 — Subset Intersection and Union (Epp page 273)

Given any sets A and B, the following rules hold:

Intersection with subset:	$(A \subseteq B) \rightarrow (A \cap B = A)$
Union with subset:	$(A \subseteq B) \rightarrow (A \cup B = B)$

Miscellaneous

Given any set A, the following rules hold:

Every set is a subset of the universal set:	$A \subseteq U$
The empty set us a subset of every set:	$\emptyset \subseteq A$
Definition of the empty set:	$(A = \emptyset) \leftrightarrow (\forall x \in U\ x \notin A)$