

(See page 182)

A, B, C subsets of a universal set U .

Empty set and U

$$A \cap \emptyset = \emptyset$$

$$A \cup \emptyset = A$$

$$A \cap U = A$$

$$A \cup U = U$$

Idempotent Laws

$$A \cap A = A$$

$$A \cup A = A$$

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

$$A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$$

$$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$$

(See page 185)

A, B subsets of a universal set U .

Basics

$$(A^c)^c = A$$
$$A - B = A \cap B^c$$

Empty set and U

$$A - \emptyset = A \qquad A - U = \emptyset$$
$$\emptyset^c = U \qquad U^c = \emptyset$$

DeMorgan's Laws

$$(A \cap B)^c = A^c \cup B^c$$
$$(A \cup B)^c = A^c \cap B^c$$

Subsets and Complements

$$A \subseteq B \text{ iff } B^c \subseteq A^c$$