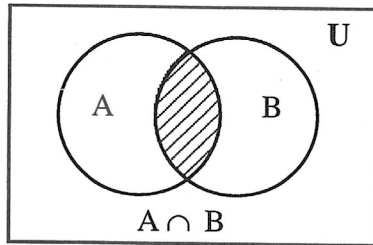$$A' = \{x \in U \mid \sim(x \in A)\}$$
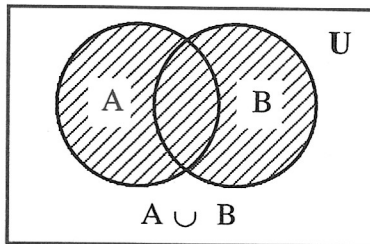
where

the prime, $'$, means complement of a set
the tilde, $\sim$, is the **logical NOT** operator
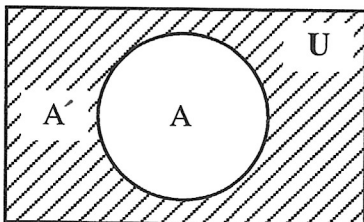
The Venn diagrams for these basic operations are shown in Figure 2.15.

(a) INTERSECTION OF SETS

(b) UNION OF SETS

(c) COMPLEMENT OF A SET

Figure 2.15 Basic Set Operations

2.12 PROPOSITIONAL LOGIC

The oldest and one of the simplest types of **formal logic** is the syllogism. The term *formal* means that the logic is concerned with the form of logical statements