

## SET THEORY

- ➔ The ***universe of discourse*** can itself be considered a set, call it  $U$ .
- ➔ The ***complement*** of  $A$ , written as  $A'$ , is the complement of  $A$  w.r.t.  $U$ , i.e., it is  $U - A$ .
- ➔ Formal definition for the complement of a set:  
 $A = \{x \mid x \notin A\}$  or  $U - A$ , where  $U$  is the universal set.
- ➔ Further examples (assuming  $U = Z$ )
  - Let  $U = \{1, 2, 3, 4, 5, 6\}$  and  $A = \{1, 3, 5\}$ .  
Then  
 $A' = \{2, 4, 6\}$ .
  - $\{1, 2, 3\} = \{\dots, -2, -1, 0, 4, 5, 6, \dots\}$ .
- **Properties of complement sets**
  - $A = A$                       Complementation law
  - $A \cup A' = U$                 Complement law
  - $A \cap A' = \emptyset$              Complement law