

### Venn diagrams

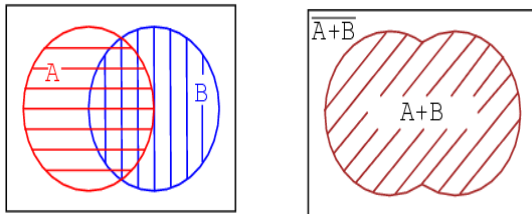
- Venn diagrams give us a graphical way to show the relationships between Boolean variables and their truth values.
- A Venn diagram consists of an enclosed area representing the universe of possibilities,
- and one or more circles representing particular variables.

### Venn diagrams

- The area inside a circle corresponds to the condition in which the variable is true
- while the area outside the circle corresponds to the condition in which the variable is false.
- These circles overlap so that all possible truth value combinations are represented in the various regions in the diagram.
- The regions to be considered are shaded

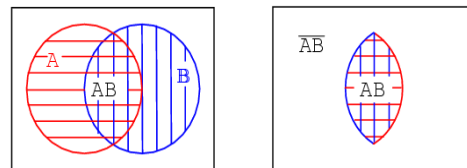
### Examples

- $A+B$



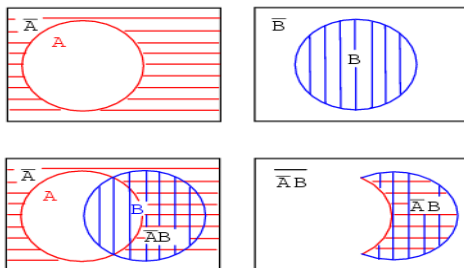
### Examples

- $A.B$



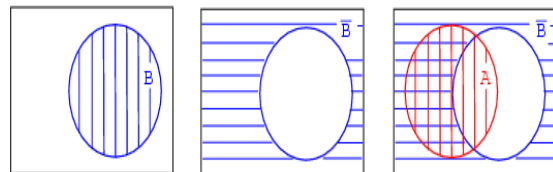
### Examples

- Show a Venn diagram for  $A'B$



### Examples

- Find  $B'+A$



### Examples

□ Find  $A'+B'$

$\bar{A}+\bar{B}$  any hatch  
 $\bar{A}+\bar{B}$  clear area  
 $\bar{A} \bar{B}$  double hatch

### Examples

□ Find  $ABC$

Three variable Venn diagram

> Use a Venn diagram to show that  
 >  $(A+B)(A+C) = A+BC$

$(A+B)(A+C)$   
 $A+BC$