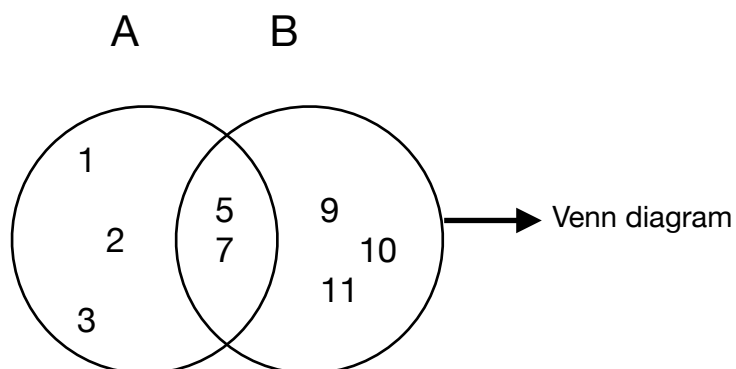


Set Operations in maths

- We can perform some binary operation on set
- Some of the operations are **union** , **intersection** , **difference** and **symmetric difference**.
- In mathematics we can perform these set operations like
- Consider 2 sets

$$A = \{ 1,2,3,5,7 \} \quad B = \{ 5,7,9,10,11 \}$$

Union :



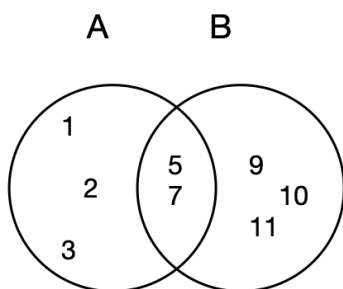
$$A \cup B = \{ 1,2,3,5,7,9,10,11 \}$$

$\cup$ - Union symbol

- Union combines the element of set A and set B together without any duplication .
- Also , $A \cup B = B \cup A$

Intersection :

- Intersection means you have to take the common elements of set A and set B.



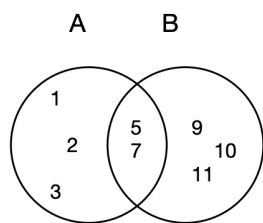
$$A \cap B = \{5, 7\}$$

$\cap$ - Intersection

- Also, $A \cap B = B \cap A$

Difference :

- Difference means, Suppose you are taking $A - B$ then take all elements of 'A' which are not present in 'B' and vice versa.



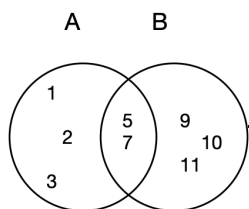
$$A - B = \{1, 2, 3\}$$

$$B - A = \{9, 10, 11\}$$

- Here, $A - B$ Not Equal to $B - A$

Symmetric Difference :

- Symmetric difference take the element present exclusively in sets A and set B and it doesn't take the common element.



$$A \Delta B = \{1, 2, 3, 9, 10, 11\}$$

Δ - symmetric difference

Here, $A \Delta B = B \Delta A$