



CBSE Class 11 Mathematics
Revision Notes
Chapter - 1
SETS

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FREE Education

1. Sets and their Representations
2. The Empty Set, Finite and Infinite Sets, Equal Sets
3. Subsets, Power Set, Universal Set
4. Venn Diagrams, Operations on Sets
5. Complement of a Set
6. Union and Intersection of Two Sets

- **Set:** A set is a well-defined collection of objects.
- **Representaiton of sets:** (i) Roster or Tabular form, (ii) Rule method or set builder form.

Types of sets:

- **Empty set:** A set which does not contain any element is called empty set or null set or void set. It is denoted by ϕ or $\{ \}$.
- **Singleton set:** A set, consisting of a single element, is called a singleton set.
- **Finite set:** A set which consists of a definite number of elements is called finite set.
- **Infinite set:** A set, which is not finite, is called infinite set.
- **Equivalent sets:** Two finite sets A and B are equivalent, if their cardinal numbers are same, .i.e, $n(A) = n(B)$.
- **Equal sets:** Two sets A and B are said to be equal if they have exactly the same elements.
- **Subset:** A set A is said to be subset of a set B, if every element of A is also an element of B. Intervals are subsets of R.
- **Proper set:** If $A \subseteq B$ and $A \neq B$, then A is called a proper set of B, written as $A \subset B$.
- **Universal set:** If all the sets under consideration are subsets of a large set U, then U is known as a universal set. And it is denoted by rectangle in Venn-Diagram.
- **Power set:** A power set of a set A is collection of all subsets of A. It is denoted by $P(A)$.
- **Venn-Diagram:** A gepmetrical figure illustrating universal set, subsets and their

operations is known as Venn-Diagram.

- **Union of sets:** The union of two sets A and B is the set of all those elements which are either in A or in B.
- **Intersection of sets:** The intersection of two sets A and B is the set of all elements which are common. The difference of two sets A and B in this order is the set of elements which belong to A but not to B.
- **Disjoint sets:** Two sets A and B are said to be disjoint, if $A \cap B = \phi$.
- **Difference of sets:** Difference of two sets i.e., set (A - B) is the set of those elements of A which do not belong to B.
- **Compliment of a set:** The complement of a subset A of universal set U is the set of all elements of U which are not the elements of A. $A' = U - A$.
- For any two sets A and B, $(A \cup B)' = A' \cap B'$ and $(A \cap B)' = A' \cup B'$
- If A and B are finite sets such that $A \cap B = \phi$, then

$$n(A \cup B) = n(A) + n(B).$$

- If $A \cap B \neq \phi$, then

$$n(A \cup B) = n(A) + n(B) - n(A \cap B)$$