

# Mathematics | Introduction of Set theory

A Set is an unordered collection of objects, known as elements or members of the set.

An element 'a' belong to a set A can be written as ' $a \in A$ ', ' $a \notin A$ ' denotes that a is not an element of the set A.

## Representation of a Set

A set can be represented by various methods. 3 common methods used for representing set:

1. Statement form.
2. Roaster form or tabular form method.
3. Set Builder method.

## Statement form

In this representation, the well-defined description of the elements of the set is given. Below are some examples of the same.

1. The set of all even number less than 10.
2. The set of the number less than 10 and more than 1.

## Roster form

In this representation, elements are listed within the pair of brackets  $\{\}$  and are separated by commas. Below are two examples.

1. Let  $N$  is the set of natural numbers less than 5.

$$N = \{ 1, 2, 3, 4 \}.$$

2. The set of all vowels in the English alphabet.

$$V = \{ a, e, i, o, u \}.$$

## Set builder form

In Set-builder set is described by a property that its member must satisfy.

1.  $\{x : x \text{ is even number divisible by 6 and less than } 100\}$ .
2.  $\{x : x \text{ is natural number less than } 10\}$ .

## Equal sets

Two sets are said to be equal if both have same elements. For example  $A = \{1, 3, 9, 7\}$  and  $B = \{3, 1, 7, 9\}$  are equal sets.