# EMPTY SETS

## Types Of Sets

### 1. Null Set (Or Empty Set Or Void Set)

A set that contains no elements is represented by ∅ or {}.

**Examples.**

1. A = Set of odd numbers divisible by 2.
2. B = Set of all omnipresent humans.
3. C = Set of all negative natural numbers
4. D = Set of all Greek letters in English alphabet.
   a. {0} or {ϕ} is not an empty set.
   b. ϕ is called the null set and (ϕ) not a null set. Since ϕ is unique.
   c. ϕ is a subset of every set.
   d. Cardinal number of ϕ is zero.
   e. A set having at least one member is non-empty set.

### 2. Singleton Set

A set consisting of a single element, for example, {∅}, {0}, {2}, {a}, etc., is referred to as a singleton set or unit set.

**Examples:**

A = Set of present chief justice of India.

B = $\{x: x^2 = 1, x > 0\}$

C = {x: x is the slope of all straight lines parallel to x-axis}

### 3. Pair–Set

A set having two elements only.

{0, 1}, {± 1}, $\{x: x \text{ is a root of } x^2 - 5x + 6 = 0\}$

### 4. Set of Sets

A set S that comprises sets as its elements is known as a set of sets, a family of sets, or a class of sets.

{{1, 2}, {2, 3} {1, 2, 3}} is a set of sets as each member is a set itself.

{{1, 2}, 7, {1, 7, 4}} is not a set of set as 7 is not a set.

A finite set is characterized by having a limited number of elements, whereas an infinite set has an unbounded number of elements. Finite and infinite sets fall into different categories among various types of sets. Finite sets imply countable data, while infinite sets involve uncountable data or data that cannot be enumerated. This principle extends to both finite and infinite sets. In this discussion covering various types of sets such as the empty set, equivalent set, subsets, singleton set, power set, universal set, disjoint set, superset, equal set, finite set, and infinite set, we will specifically explore finite and infinite sets with examples.