

## 2. Sets and Venn Diagrams

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### Number Set

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Def:

Set - collection of numbers or objects

empty set -  $\{\}$

number of elements -  $n(S)$

Finite Set - set which contains a finite number of elements

Infinite set - set which contains an infinite number of elements

$N = \{0,1,2,3,4,5,\dots\}$  set of all natural or counting numbers

$Z = \{-3,-2,-1,0,1,2,3\}$  set of all integers

$Z^+ = \{1,2,3,4,5\}$  set of all positive integers

$Q$  is set of all rational numbers which can be written in the form  $p/q$  when  $p$  and  $q$  are integers. the denominator cannot be 0

$R$  is set of all real numbers, numbers that can be placed on the number line

### Interval Notation

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### Subsets and Compliment

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Subset - Suppose  $A$  and  $B$  are two sets.  $A$  is a subset of  $B$  if every element of  $A$  is also an element of  $B$ .

Universal Set - set of all elements under consideration

not ( $'$ ) - meaning no element of

### Venn Diagram

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Venn Diagram - consist of universal by a rectangle, and subsets within it that are generally represented by circles

### Union and Intersection

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Intersect - Intersect of  $A$  and  $B$  consist of all elements which are both  $A$  &  $B$

union - Union of  $A$  and  $B$  consist of all elements which are in  $A$  or  $B$

Two sets are **disjoint** or **mutually exclusive** if they have no elements in common

## Numbers in Regions

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## Problem Solving with Venn Diagrams

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