Chapter 2: Mathematical Language and Symbols

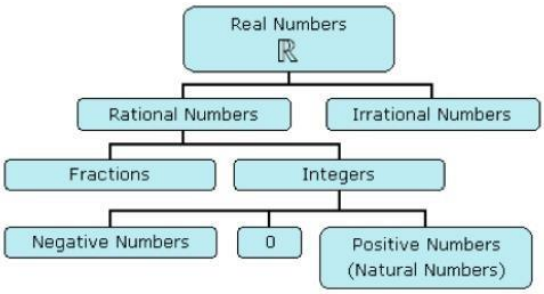
2.1 MATHEMATICS AS A LANGUAGE

- Language communicating conventionalized marks having an idea systematic or signs, understood feelings sounds, means by the use gestures, meanings.

CHARACTERISTICS OF MATHEMATICS LANGUAGE

- precise
  - able to make very fine distinctions
- concise
  - able to say things brief
- powerful
  - able to express complex thoughts with relative ease

2.1.1 SOME CLASSIFICATION OF SYMBOLS



- Operation Symbols
  - ×, ÷, +, −, xn
- Relation Symbols
  - ≥, ≤, ≅, ≈, ≠, =
- Grouping Symbols
  - ( ), [ ], {}
- Variables
  - alphabet
- Set Theory Symbols
  - ∈, ∉, ⊂,U,∩, ∅, ⊆
- Logic Symbols
  - ⇒, ⇔, ∨, ∧, ∀, ∃, ∴
- Statistical Symbols
  - $\tilde{x}$, μ, $\bar{x}$, σ, $n!$

2.1.2 MATHEMATICAL EXPRESSION AND MATHEMATICAL SENTENCE

- Mathematical expression
  - does not state complete thought
- Mathematical sentence
  - states complete thought

2 TYPES OF SENTENCES

- Open sentence
  - Cannot be determined whether it is true or false.
- Closed sentence
  - Can be determined whether it is true or false.

2.2 SET, RELATION, FUNCTION, & BINARY

2.2.1 SET

- a well-defined collection of distinct objects.
- A collection of set

2 WAYS TO SPECIFY A SET

1. Roster method
   - ➔ Elements are enumerated, listed.
2. Rule method
   - ➔ Phrase to describe the elements.