Key concepts, descriptions, definitions

Set: A collection of distinct objects (characterized by common properties)

$\in$: "belongs to"
$\notin$: "does not belong to"

$a \in A$ indicates that a is an element of the Set A

Object: anything that can be distinguished and isn't worth analyzing into simpler constituents

Elements: objects of a set

A set may be defined by using a sentence expressing the properties required for an element to be a member of that set or by listing its elements

The size of a set is obtained labeling all of its elements with distinct successive natural numbers (starting w/1) then determining the largest number assigned

#(A): denotes the "cardinality" or set size of set A

$A \equiv \{X | X \text{ has the property } P\}$: "A is the set of elements X such that X has the Property P"

D-1.1.1: A countable set is one which is either finite or consists of elements which can be placed in a one-to-one correspondence with the positive integers. If the set is also infinite it is called "countably infinite"

D-1.1.2: A set A is equal to a set B (A=B) if every element of A is also an element of B and vice-versa.

D-1.1.3: A set A is contained within a set B, or is considered a subset of B if every element of A is also an element of B.

$A \subseteq B$

Additionally, if some element of B is not an element of A, A is said to be properly contained, or a proper subset of B.

$A \subset B$

D-1.1.4: The union of two sets A and B ($A \cup B$) is the set containing all the elements of both A and B

$A \cup B \equiv \{x | x \in A \text{ or } x \in B \text{ or both}\}$

D-1.1.5: The intersection of two sets A and B ($A \cap B$), is the set containing all elements common to both A and B

$A \cap B \equiv \{a | a \in A \text{ and } a \in B\}$

D1.1.6: The empty set ($\varnothing$) is the set which contains no elements. If the intersection of two sets is the empty set, they are said to be disjoint.