Why

We want to talk about none, one, or several objects considered as an aggregate.

Definition

A *set* is an intangible object. We think of it as several objects considered as a whole. We say that these objects *belong* to the set. They are the set's *members* or *elements*.

The objects a set contains may be other sets. In other words, an element of a set may be another set. This may be subtle at first glance, but becomes familiar with experience.

We call a set which contains no objects *empty*. Otherwise we call a set *nonempty*.

Notation

We want to talk about objects and sets. Since we tend to denote objects by lower case Latin letters, and we tend to think of objects and the sets they belong to, we tend to denote sets by upper case Latin letters. For example, the letter A, B and C. belonging to sets We tend to denote sets by upper case Latin letters: for example, A, B, and C. To aid our memory, we tend to use the lower case form of the letter for an element of the set. For example, let A and B be nonempty sets. We tend to denote by a an element of A. And similarly, we tend to denote by b an element of B

We denote that an object a is an element of a set A by $a \in A$. We read the notation $a \in A$ aloud as “a in A." The symbol $\in$ is a stylized lower case Greek letter ε, which is a mnemonic for $\varepsilon\sigma\tau\iota$ which means “belongs". In English, since ε is read aloud “ehp-sih-lawn," $\in$ is a mnemonic for “element of". We denote that an object a is not an element of the set A by $a \notin A$. We read this notation aloud as “a not in A."

Sets

Objects