Why

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

Definition

A *set* is an abstract object. We think of it as several objects considered as a whole. The central primitive notion is that of *belonging*. A set *contains* the objects so considered. These objects are the *members* or *elements* of the set. They belong to the set.

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 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