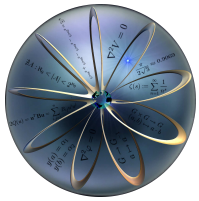

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subset

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Related topic	CardinalityOfAFiniteSetIsUnique
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Defines	set inclusion

Given two sets A and B, we say that A is a subset of B (which we denote as $A \subseteq B$ or simply $A \subset B$) if every element of A is also in B. That is, the following implication holds:

$$x \in A \Rightarrow x \in B.$$

The relation between A and B is then called *set inclusion*.

Some examples:

The set $A = \{d, r, i, t, o\}$ is a subset of the set $B = \{p, e, d, r, i, t, o\}$ because every element of A is also in B. That is, $A \subseteq B$.

On the other hand, if $C = \{p, e, d, r, o\}$, then neither $A \subseteq C$ (because $t \in A$ but $t \notin C$) nor $C \subseteq A$ (because $p \in C$ but $p \notin A$). The fact that A is not a subset of C is written as $A \nsubseteq C$. Similarly, we have $C \nsubseteq A$.

If $X \subseteq Y$ and $Y \subseteq X$, it must be the case that $X = Y$.

Every set is a subset of itself, and the empty set is a subset of every other set. The set A is called a proper subset of B, if $A \subset B$ and $A \neq B$. In this case, we do not use $A \subseteq B$.