



Subsets

1 Why

How do sets relate?

2 Two Sets

A **subset** of a first set is any second set for which each element of the second is an element of the first. A **superset** of a first set is any second set for which each element of the first set is an element of the second. Two sets are **equal** if the first is a subset of the second and the second is a subset of the first. In this case, the sets contain the same elements.

The **power set** of a set is the set of all subsets of that set. It includes the set itself and the empty set. We call these two sets **improper subsets** of the set. We call all other sets **proper subsets**.

2.1 Notation

Let A and B be sets. We denote that A is a subset of B by $A \subset B$. We read the notation $A \subset B$ aloud as “A subset B”.

We denote that A is equal to B by $A = B$. We read the notation $A = B$ aloud as “ A equals B ”. We denote the empty set by \emptyset , read aloud as “empty.” We denote the power set of A by 2^A , read aloud as “two to the A .” $A \in \{A\}$ is true whereas $A = \{A\}$ is false.