



Why

How does the power set relate to an intersection?

Notation Preliminaries

First, if we have a set of sets—denote it \mathcal{C} —and all members are subsets of a fixed set—denote it E —then the set of sets is a subset of E^* . In this case, we can write

$$\bigcap \{X \in E^* \mid x \in \mathcal{C}\}$$

Which is a sort of justification for the notation

$$\bigcap_{X \in \mathcal{C}} X.$$

Discussion

Proposition 1. $A^* \cap F^* = (A \cap F)^*$

Proposition 2. $\bigcap_{X \in \mathcal{A}} A^* = (\bigcap_{X \in \mathcal{A}} A)^*$

Proposition 3. $\bigcap_{X \in E^*} X = \emptyset$

