

Prove (not with a Venn diagram, but with formal argument) or disprove each of the following statements:

- If $A \subseteq C$ and $B \subseteq D$, then $B - C \subseteq D - A$.
- $\mathcal{P}(A) - \mathcal{P}(B) \subseteq \mathcal{P}(A - B)$.
- If $A \cup B \subseteq C \cup D$, $A \cap B = \emptyset$, and $C \subseteq A$, then $B \subseteq D$.