

Complete the following definitions.

Example. $x \in (A \cup B) \setminus C$ if and only if

$$(x \in A \text{ or } x \in B) \text{ and } x \notin C.$$

1. $x \in (A \setminus B) \setminus (C \cup D)$ if and only if

2. $x \in (A \cap B) \cup (C \setminus D)$ if and only if

True or False. No justification is required.

3. $A \times \{\emptyset\} = \emptyset$ for any set A .

True

False

4. $\{\{-1, 4, 11\}\} \subset \mathcal{P}(\mathbb{Z})$.

True

False

5. Prove that if $C \subset A$ and $D \subset B$, then $D \setminus A \subset B \setminus C$.