

Answers to Concept Quiz 5.1

1. **Set operations** Let V , C , and F be sets. What is the set of members of F that are not members of C and also not members of V ?

- $V - C$.
- $(F - V) \cup (F - C)$.
- $V - (C \cup F)$.
- $F - (C \cup V)$.
- $V - (C \cap F)$.
- $(C \cup F) - V$.

2. **More set operations** Consider the following sets: Here, the universal set is \mathbb{N} . $A := \{n \in \mathbb{N} \mid n \equiv 0 \pmod{5}\}$ $B := \{n \in \mathbb{N} \mid n \equiv 0 \pmod{4}\}$ $C := \{n \in \mathbb{N} \mid n \equiv 0 \pmod{2}\}$ The number 18 is a member of which sets (select all that apply).

- $B \cup C$
- $A \cup B$
- $A \cap C$
- B^c
- $A^c - B$
- $B - A$
- $C^c - B$

3. **Sets and logical statements** Suppose that A and B are subsets of some universal set U . Which of the following are equivalent to $A^c \subseteq B$?

- $(\forall x \in U)(x \in A \rightarrow x \in B)$
- $(\forall x \in U)(x \notin A \rightarrow x \in B)$
- $(\forall x \in U)(x \notin B \rightarrow x \in A)$
- $(\forall x \in U)(x \in B \rightarrow x \notin A)$