

2.2 Set Operations

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Let $A = \{1, 2, 3, 4, 5\}$ and $B = \{0, 3, 6\}$. Find

a $A \cup B$

b $A \cap B$

c $A - B$

d $B - A$

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Prove the second De Morgan law in Table 1 by showing that if A and B are sets, then $\overline{A \cup B} = \overline{A} \cap \overline{B}$

a by showing each side is a subset of the other side.

b using a membership table

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Show that if A and B are sets, then

a $A - B = A \cap \overline{B}$

b $(A \cap B) \cup (A \cap \overline{B}) = A$

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Draw the Venn diagrams for each of these combinations of the sets A, B, C .

a $A \cap (B - C)$

b $(A \cap B) \cup (A \cap C)$