

**Answer on Question #76359 – Math – Discrete Mathematics**

**Question**

Prove that  $A - (B \cup C) = (A - B) \cap (A - C)$ , for sets A, B and C.

**Solution**

$$A - (B \cup C) = A \cap \overline{B \cup C} = A \cap (\overline{B} \cap \overline{C}) = A \cap \overline{B} \cap \overline{C}.$$

$$\text{Then } (A - B) \cap (A - C) = (A \cap \overline{B}) \cap (A \cap \overline{C}) = A \cap \overline{B} \cap A \cap \overline{C} = A \cap \overline{B} \cap \overline{C}.$$

$$\text{Hence } A - (B \cup C) = (A - B) \cap (A - C)$$

Q.E.D.