SETS

Question

$$Prove: \overline{A} \equiv (\Omega \setminus A) \cup \overline{(A \cup (C \cap B))} \qquad State\ proof \qquad (1)$$

Answer

$$(\Omega \setminus A) \cup \overline{(A \cup (C \cap B))} \equiv \overline{A} \cup \overline{(A \cup (C \cap B))} \qquad Definition \qquad (2)$$

$$\overline{A} \equiv \overline{A} \cup \overline{(A \cup (C \cap B))} \qquad Difference \qquad (3)$$

$$\overline{A} \equiv \overline{A} \cup \left(\overline{A} \cap \overline{C} \cap \overline{B}\right) \qquad DeMorgan \qquad (4)$$

$$\overline{A} \equiv \overline{A} \cup \left(\overline{C} \cap \overline{B} \cap \overline{A}\right) \qquad Commutative \qquad (5)$$

$$\overline{A} \equiv \overline{A} \qquad Absorption \qquad (6)$$