EXERCISE: MORE PROPERTIES (2/2 points)

Let A, B, and C be subsets of the sample space, not necessarily disjoint. For each one of the following statements, determine whether it is true or false. *Note:* "False" means "not guaranteed to be true."

a) $\mathbf{P}\big((A \cap B) \cup (C \cap A^c)\big) \leq \mathbf{P}(A \cup B \cup C)$

True ✔ **Answer:** True

b) $\mathbf{P}(A \cup B \cup C) = \mathbf{P}(A \cap C^c) + \mathbf{P}(C) + \mathbf{P}(B \cap A^c \cap C^c)$

True ✔ **Answer:** True

Answer:
a) True. This is because the set $(A \cap B) \cup (C \cap A^c)$ is a subset of $A \cup B \cup C$.

b) True. This is the same property shown in the last segment, with the three sets appearing in a different order.

You have used 1 of 1 submissions

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