1. Use the axioms of probability to show each part.

(a) **(2 pts)** Suppose A and B are two events, and $A \subset B$. Then $P(A) \leq P(B)$.

(b) **(2 pts)** Use part (a) to show that if C is an event, then $P(C) \leq 1$.

(c) **(3 pts)** If A and B are two events, then

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$