

1. Let A_1, A_2, \dots, A_n be a series of events for which $A_i \cap A_j = \emptyset$ if $i \neq j$ and $A_1 \cup A_2 \cup \dots \cup A_n = S$. Let B be any event defined on S . Express B as a union of intersections.
2. Show that if $B \subset A$, then $P(A \setminus B) = P(A) - P(B)$.
3. Suppose $P(A) = 1/3, P(B) = 1/2$, and $P(A \cup B) = 3/4$. What is *i*) $P(A \cap B)$ and *ii*) $P(A' \cup B')$?
4. Suppose an experiment has only two outcomes. The probability of the first is p and the probability of the second is p^2 . What is p ?
5. Suppose A and B are defined on a sample space such that $P((A \cup B)') = 0.5$ and $P(A \cap B) = 0.2$. What is the probability that A or B will occur, but not both?