

Answer on Question #45531, Engineering, SolidWorks

Problem.

If A and B are mutually exclusive and $P(A)=0.29, P(B)=0.43$. Find

a) $P(A')$, b) $P(A \cup B)$, c) $P(A \cap B')$

Remark.

The part of the question is missed. I suppose that this is question from Super Course in Mathematics for the IIT-JEE: Algebra II. The full statement is:

“If A and B are mutually exclusive and $P(A)=0.29, P(B)=0.43$. Find

a) $P(A')$, b) $P(A \cup B)$, c) $P(A \cap B')$, d) $P(A' \cap B')$.”

Solution.

Since A and B are mutually exclusive events $A \cap B = \emptyset$ and $P(A \cap B) = 0$.

a) $P(A') = 1 - P(A) = 0.71$;

b) $P(A \cup B) = P(A) + P(B) - P(A \cap B) = P(A) + P(B) = 0.72$.

c) $P(A \cap B') = P(A) = 0.29$, as A is subset of B' (A and B are mutually exclusive).

d) $P(A' \cap B') = P((A \cup B)') = 1 - P(A \cup B) = 0.28$, by De Morgan's law.

Answer: a) $P(A') = 0.71$; b) $P(A \cup B) = 0.72$; c) $P(A \cap B') = 0.29$; d) $P(A' \cap B') = 0.28$.