

NCERT Assignment 3

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Question : Events E and F are such that $P(\text{not } E \text{ or not } F) = 0.25$, State whether E and F are mutually exclusive.

Solution: Given that:

$$\Pr(E^C + F^C) = \frac{1}{4} \quad (1)$$

From De-Morgan's Law, We can state that

$$\Pr(E^C + F^C) = \Pr(EF)^C \quad (2)$$

From (1) and (2), We get

$$\Pr(EF)^C = \frac{1}{4} \quad (3)$$

$$\implies 1 - \Pr(EF) = \frac{1}{4} \quad (4)$$

$$\implies \Pr(EF) = \frac{3}{4} \quad (5)$$

We can say that,

$$\therefore \Pr(EF) \neq 0 \quad (6)$$

E and F are not mutually exclusive events.