A1110 Assignment 1
11.16.3.16

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Question: : 16 : Events E and F are such that $\Pr(E' + F') = 0.25$, State whether E and F are mutually exclusive.

Solution: :

As given in the question ;

$$\Pr(E' + F') = 0.25 \tag{1}$$
$$\Pr(E' + F') = \Pr(EF)' \tag{2}$$
$$\implies 1 - \Pr(EF) = 0.25 \tag{3}$$
$$\implies \Pr(EF) = 0.75 \tag{4}$$

$$\because \Pr(EF) \neq 0 \tag{5}$$

As, the condition of mutually exclusive is

$$\Pr(EF) = \emptyset \tag{6}$$

$\therefore$ E and F are not mutually exclusive events.