PROBABILITY

DIVYA SAI - FWC22094

13.2.6 [1] Let E and F be events with $\Pr(E) = \frac{3}{5}$,$\Pr(F) = \frac{3}{10}$ and $\Pr(EF) = \frac{1}{5}$.Are E and F independent?

Solution:
Two events are said to be independent if,

$$\Pr(EF) = \Pr(E)\Pr(F) \tag{13.2.6.1}$$

$$\because \Pr(E)\Pr(F) = \frac{3}{5} \times \frac{9}{50} \tag{13.2.6.2}$$

$$\Pr(EF) = \frac{1}{50} \tag{13.2.6.3}$$

$$\Pr(EF) \neq P(E)P(F) \tag{13.2.6.4}$$

$\therefore$ E and F are not independent events

[1] Read question numbers as (CHAPTER NUMBER).(EXERCISE NUMBER).(QUESTION NUMBER)