

CHAPTER 15

Probability

Example:

The following table shows the number of vehicles owned by 300 families in a neighborhood.

Number of Vehicles	0	1	2	3
Number of families	25	125	105	45

Find the probability that a family chosen at random owns.

(i) More than 2 vehicles.

(ii) Exactly 2 vehicles.

(iii) More than one vehicle.

Sol:

Let 'S' be the sample space, the number of vehicles owned by 300 families,

$$n(S) = 300$$

(i) Let " E_1 " be the event of getting, more than 2 vehicles,

$$\Rightarrow n(E_1) = 45$$

$$\therefore P(E_1) = \frac{n(E_1)}{n(S)} \Rightarrow P(E_1) = \frac{45}{300} \Rightarrow P(E_1) = \frac{3}{20}$$

(ii) Let " E_2 " be the event of getting, exactly 2 vehicles,

$$\Rightarrow n(E_2) = 105$$

$$\therefore P(E_2) = \frac{n(E_2)}{n(S)} \Rightarrow P(E_2) = \frac{105}{300} \Rightarrow P(E_2) = \frac{7}{20}$$

(iii) Let “ E_3 ” be the event of getting, more than one vehicle,

$$P(E_3) = P(E_1) + P(E_2)$$

$$= \frac{3}{20} + \frac{7}{20}$$

$$= \frac{3+7}{20}$$

$$= \frac{10}{20}$$

$$\therefore P(E_3) = \frac{1}{2}$$

