Question 10.13.3.32

Cards with numbers 2 to 101 are placed in a box. A card is selected at random.Find the probability that the card has

(i) an even number

(ii) a square number

Solution:

(i) an even number

$$X = \begin{cases} 1, & \text{if number is even} \\ 0, & \text{otherwise} \end{cases} \tag{1}$$

Then

$$p_X(1) = \frac{50}{100} \tag{2}$$

$$= \frac{1}{2} \tag{3}$$

(ii) a square number

$$Y = \begin{cases} 1, & \text{if square number} \\ 0, & \text{otherwise} \end{cases} \tag{4}$$

Then

$$p_Y(1) = \frac{9}{100} \tag{5}$$