

EE23010 NCERT Exemplar

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Question 10.13.3.29

The king, queen and jack of clubs are removed from a deck of 52 playing cards and then well shuffled. Now one card is drawn at random from the remaining cards. Determine the probability that the card is

- (i) a club
- (ii) 10 of hearts

Solution:

Total number of cards left

$$52 - 3 = 49 \quad (1)$$

Random variable	Sample space	Value	Event	Probability
X_1	49	1	the card is a club	$\frac{10}{49}$
X_1	49	0	the card is not a club	$\frac{39}{49}$
X_2	49	1	the card is a 10 of hearts	$\frac{1}{49}$
X_2	49	0	the card is a not a 10 of hearts	$\frac{48}{49}$

From the table,

- (i) The event of getting a club

$$P_r(X_1 = 1) = \frac{10}{49} \quad (2)$$

- (ii) The event of getting a 10 of hearts

$$P_r(X_2 = 1) = \frac{1}{49} \quad (3)$$