Probability Ex 13.1 Q34

Answer :

GIVEN: A bag contains 5 red, 7 black and 8 white balls and a ball is drawn at random
TO FIND: Probability of getting a
(i) red or white ball
(ii) not black ball
(iii) neither white nor black
Total number of balls $5+7+8=20$
(i) Total number red and white balls are $5+8=13$

We know that PROBABILITY = $\frac{\text{Number of favourable event}}{\text{Total number of event}}$

Hence probability of getting red or white ball $=\boxed{\frac{13}{20}}$

(ii) Total number of black balls are 7

We know that PROBABILITY = $\frac{\text{Number of favourable event}}{\text{Total number of event}}$

Hence probability of getting black ball $P(E)=\frac{7}{20}$

We know that sum of probability of occurrence of an event and probability of non occurrence of an event is 1.

$$P(\mathrm{E})+P(\bar{\mathrm{E}})=1$$

$$\frac{7}{20}+\mathrm{P}(\bar{\mathrm{E}})=1$$

$$\mathrm{P}(\bar{\mathrm{E}})=1-\frac{7}{20}$$

$$\mathrm{P}(\bar{\mathrm{E}})=\frac{20-7}{20}$$

$$\boxed{\mathrm{P}(\bar{\mathrm{E}})=\frac{13}{20}}$$

Hence the probability of getting a non black ball is $\boxed{\mathrm{P}(\bar{\mathrm{E}})=\frac{13}{20}}$

(iii) Total number of neither red nor black balls i.e. red ball is 5

We know that PROBABILITY = $\frac{\text{Number of favourable event}}{\text{Total number of event}}$

Hence probability of getting neither white nor black ball $\frac{5}{20}=\boxed{\frac{1}{4}}$

Probability Ex 13.1 Q35

Answer :

GIVEN: A number is selected from numbers 1 to 25
TO FIND: Probability of getting a number which is not a prime.
Total number of cards is 25.

Total number of elementary events = 25
Cards bearing non prime numbers are 1,4,6,8,9,10,12,14,15,16,18,20,21,22,24, 25
Total number of cards bearing non-prime numbers = 16

Number of favourable elementary events = 16
We know that , Probability = number of favourable elementary eventsTotal number of elementary events
So, P(getting a card bearing a non prime number) = 1625

Probability Ex 13.1 Q36

Answer :

GIVEN: A bag contains 8 red, 4 black and 6 white balls and a ball is drawn at random

TO FIND: Probability of getting a

(i) red or white ball

(ii) not black ball

(iii) neither white nor black

Total number of balls $8+4+6=18$

(i) Total number red and white balls are $6+8=14$

We know that PROBABILITY = $\frac{\text{Number of favourable event}}{\text{Total number of event}}$

Hence probability of getting red or white ball $\frac{14}{18}=\boxed{\frac{7}{9}}$

(ii) Total number of black balls is 4

We know that PROBABILITY = $\frac{\text{Number of favourable event}}{\text{Total number of event}}$

Hence probability of getting black ball $P(E)=\frac{4}{18}=\frac{2}{9}$

We know that sum of probability of occurrence of an event and probability of non occurrence of an event is 1.

$$P(\mathrm{E})+P(\bar{\mathrm{E}})=1$$

$$\frac{2}{9}+\mathrm{P}(\bar{\mathrm{E}})=1$$

$$\mathrm{P}(\bar{\mathrm{E}})=1-\frac{2}{9}$$

$$\mathrm{P}(\bar{\mathrm{E}})=\frac{9-2}{9}$$

$$\mathrm{P}(\bar{\mathrm{E}})=\frac{7}{9}$$

Hence the probability of getting non black ball is $\boxed{\mathrm{P}(\bar{\mathrm{E}})=\frac{7}{9}}$

(iii) Total number of neither red nor black balls i.e. red ball is 8

We know that PROBABILITY = $\frac{\text{Number of favourable event}}{\text{Total number of event}}$

Hence probability of getting neither white nor black ball $\frac{8}{18}=\boxed{\frac{4}{9}}$

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