



Exercise 15.2

Q3. A bag contains 5 red balls and some blue balls. If the probability of drawing a blue ball is double that of a red ball, determine the number of blue balls in the bag.

Ans. Let there be x blue balls in the bag.

\therefore Total number of balls in the bag $= 5 + x$

Now, $P_1 = \text{Probability of drawing a blue ball} = \frac{x}{5+x}$

And $P_2 = \text{Probability of drawing a red ball} = \frac{5}{5+x}$

But according to question, $P_1 = 2P_2$

$$\Rightarrow \frac{x}{5+x} = 2 \times \frac{5}{5+x}$$

$$\Rightarrow \frac{x}{5+x} \times \frac{5+x}{5} = 2$$

$$\Rightarrow x = 10$$

Hence, there are 10 blue balls in the bag.

Q4. A box contains 12 balls out of which x are black. If one ball is drawn at random from the box, what is the probability that it will be a black ball?

If 6 more black balls are put in the box, the probability of drawing a black ball is now double of what it was before. Find x .

Ans. There are 12 balls in the box.

Therefore, total number of favourable outcomes = 12

The number of favourable outcomes = x

$$\text{Therefore } P_1 = P(\text{getting a black ball}) = \frac{x}{12}$$

If 6 more balls put in the box, then

Total number of favourable outcomes = $12 + 6 = 18$

And Number of favourable outcomes = $x + 6$

$$\therefore P_2 = P(\text{getting a black ball}) = \frac{x+6}{18}$$

According to question, $P_2 = 2P_1$

$$\Rightarrow \frac{x+6}{18} = 2 \times \frac{x}{12}$$

$$\Rightarrow \frac{x+6}{18} \times \frac{12}{x} = 2$$

$$\Rightarrow x = 3$$

Q5. A jar contains 24 marbles, some are green and others are blue. If a marble is drawn at random from the jar, the probability that it is green is $\frac{2}{3}$. Find the number of blue balls in the jar.

Ans. Here, Total number of favourable outcomes = 24

Let there be x green marbles.]

Therefore, Favourable number of outcomes = x

$$\therefore P(G) = \frac{x}{24}$$

$$\text{But } P(G) = \frac{2}{3}$$

$$\therefore \frac{x}{24} = \frac{2}{3}$$

$$\Rightarrow x = 16$$

Therefore, number of green marbles are 16

And number of blue marbles = $24 - 16 = 8$

***** END *****