

FlexiPrep

CBSE Class 10-Mathematics: Chapter – 15 Probability Part 1 (For CBSE, ICSE, IAS, NET, NRA 2022)

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Question 1:

An integer is chosen at random from the first two hundreds digit. What is probability that the integer chosen is divisible by 6 or 8 .

Answer

Multiples of 6 first 200 integers

6,12,18, 24, 30,36,42, 48, 54,60,66, 72, 78,84,90, 96, 102,108,114, 120,

126,132,138, 144, 150,156,162, 168, 174,180,186, 192, 198

Multiples of 8 first 200 integers

8,16, 24, 32,40, 48, 56,64, 72, 80,88, 96, 104,112, 120,

128,136, 144, 152,160, 168, 176,184, 192, 200

Number of Multiples of 6 or 8 = 50

$$P(\text{Multiples of 6 or 8}) = \frac{50}{200} = 1/4$$

Question 2:

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 out in the box. The probability of drawing a black ball is now double of what it was before. Find x .

Answer:

Total number of balls = 12

Let the number of black balls be x .

$$P(\text{drawing a black ball}) = \frac{x}{12}$$

It is given that 6 more black balls are put in the box.

Now, we have:

Total number of balls = 18

Number of black balls = $x + 6$

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

Therefore, we have:

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

$$\frac{x + 6}{18} = \frac{x}{6}$$

$$x + 6 = 3x$$

$$2x = 6$$

$$x = 3$$

Question 3:

A bag contains 8 red balls and x blue balls, the odd against drawing a blue ball are 2: 5. What is the value of x ?

Answer:

No. of blue balls be x

No. of red balls be 8 Total no. of balls = $x + 8$

$$\text{Probability of drawing blue balls} = \frac{x + 6}{18} = \frac{x}{6}$$

$$\frac{8}{8 + x} : \frac{x}{8 + x} = 2 : 5$$

$$2 \left(\frac{x}{8 + x} \right) = 5 \left(\frac{8}{8 + x} \right)$$

$$2x = 40 .$$

$$\therefore x = 20$$

Question 4:

A card is drawn from a well shuffled deck of cards

- i. What are the odds in favour getting spade?
- ii What are the odds against getting a spade?
- iii. What are the odds in favour of getting a face card?
- iv. What are the odds in favour of getting a red king

Answer:

Total cards 52

Spade = 13

Remaining cards 39

i. The odds in favour of getting spade 13

The odds is not favour of getting spade 39

$$= \frac{13}{52} : \frac{39}{52} = 1 : 3$$

ii. The odds against getting a spade 13

The odds not against getting a spade 39

iii. The odds in favour of getting a face card 12

The odds not in favour of getting a face card 40

$$= \frac{12}{52} : \frac{40}{52} = 3 : 10$$

iv. The odds in favour of getting a red king 2

The odds not in favour of getting a red king 50

$$= \frac{2}{52} : \frac{50}{52} = 1 : 25$$

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