RS Aggarwal Solutions for Class 10 Maths Chapter 15 Exercise 15.2: RS Aggarwal Solutions for Class 10 Maths Chapter 15, Exercise 15.2 focuses on the concept of probability. This chapter is important as it introduces students to the fundamental principles of probability, which is the measure of the likelihood of an event occurring.

Exercise 15.2 contains a variety of problems that help students understand and apply these principles to different scenarios.

By working through these solutions students can develop a strong foundation in probability which is essential for their board exams and future mathematical studies.

RS Aggarwal Solutions for Class 10 Maths Chapter 15 Exercise 15.2 Overview

RS Aggarwal Solutions for Class 10 Maths Chapter 15 Exercise 15.2 are prepared by the subject experts at Physics Wallah. These solutions give a clear and simple overview of probability concepts. Each answer is explained step-by-step, making it easy for students to understand how to solve probability problems.

With these expert solutions, students can build a strong foundation in probability, which is important for doing well in their board exams.

RS Aggarwal Solutions for Class 10 Maths Chapter 15 Exercise 15.2 PDF

RS Aggarwal Solutions for Class 10 Maths Chapter 15, Exercise 15.2 PDF is a helpful resource for students learning about probability.

These solutions make it easier for students to understand how to solve these problems and do well in their exams. You can download the PDF using the link provided below to improve your understanding of probability.

RS Aggarwal Solutions for Class 10 Maths Chapter 15 Exercise 15.2 PDF

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Q. A box contains 25 cards numbered from 1 to 25. A card is drawn at random from the bag. Find the probability that the number on the drawn card is (i) divisible by 2 or 3, (ii) prime number.

Solution:

Let S be the sample space i.e bag contains cards numbered from 1 to 25.

n(S) = 25 .

A event of getting the number on this card is divisible by both 2 and 3 is n(A)

= { 6,12,18,24} = 4

P(A) =

(ii)number of prime number between 1 to 25 =9

hence probability =

Q. A box contains cards numbered 3, 5, 7, 9, ..., 35, 37. A card is drawn at random from the box. Find the probability that the number on the card is a prime number.

Solution:

We know that ,

The probability event E

P(E) = Number of outcomes favourable to E / Number of all

possible outcomes of the experiment

According to the problem given ,

Number of all possible outcomes =

Number of cards the box contains = 18 -------(1)

(3,5,7,9,11,13,15,17,19,21,23,25,,27,29,31,33,35,37)

Number of outcomes favourable = 11 ----- (2)

(since prime number cards in the box are

3 , 5 ,7, 11 , 13 ,17 , 19 ,23 , 29 , 31 , 37)

n = 18, there are 11 prime nos

(P) = (11/18)

Q. Cards numbered 1 to 30 are put in a bag. A card is drawn at random fromthe bag. Find the probability that the number on the drawn card is (i) not divisible by 3, (ii) a prime number greater that 7, (iii) not a perfect square number.

Solution:

(i)not divisible by 3 -{ 1 , 2 , 4 , 5 , 7 , 8 , 10 , 11 , 13 , 14 , 16 , 17 , 19 , 20 , 22 , 23 , 25 , 26 , 28 , 29.}=20

P = =

(ii)a prime number greater than 7 -{ 9 , 11 , 13 , 17 , 19 , 23 , 29.}=7

P =

(iii)not a perfect square -

30-{1 , 4 , 9 , 16 , 25.}=25

P =

Q. Cards bearing numbers 1, 3, 5, ..., 35 are kept in a bag. A card is drawn at random from the bag. Find the probability of getting a card bearing (iI) a prime number less than 15, (ii) a number divisible by 3 and 5.

Solution:

(i). Event: less than 15

Sample space - 1,3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35.

Total no. of outcomes = 18

No of favourable outcome=5 (i.e - 3, 5, 7, 11, 13.)

Therefore

P(E)=518

(ii). Since both 15 and 30 are divisible by 3 as well as 5 but since 30 is not included in sample space. Therefore,

Favourable outcome = 1 (ie. 15)

P(E)=118

Q. Cards marked with numbers 1, 3, 5, ..., 101 are placed in a bag and mixed thoroughly. A card is drawn at random from the bag. Find the probability that the number on the drawn card is (i) less than 19, (ii) a prime number less than 20.

Solution:

Given number 1, 3, 5, ... , 101 form an AP with a = 1 and d = 2.

Let Tn = 101. Then,

1 + (n - 1)2 = 101

⇒ 1 + 2n - 2 = 101

⇒ 2n = 102

⇒ n = 51

Thus, total number of outcomes = 51.

(i) Let E1 be the event of getting a number less than 19.

Out of these numbers, numbers less than 19 are 1, 3, 5, ... , 17.

Given number 1, 3, 5, ... , 17 form an AP with a = 1 and d = 2.

Let Tn = 17. Then,

1 + (n - 1)2 = 17

⇒ 1 + 2n - 2 = 17

⇒ 2n = 18

⇒ n = 9

Thus, number of favorable outcomes = 9.

Therefore,
P(getting a number less than 19) = P(E1) = Number of outcomes favorable to E1 / Number of all possible outcomes
= 9/51= 3/17

Thus, the probability that the number on the drawn card is less than 19 is 3/17.

(ii) Let E2 be the event of getting a prime number less than 20.

Out of these numbers, prime numbers less than 20 are 3, 5, 7, 11, 13, 17 and 19.

Thus, the number of favorable outcomes = 7.

Therefore,
P(getting a prime number less than 20) = P(E2) = Number of outcomes favorable to E2/Number of all possible outcomes
= 7/51

Thus, the probability that the number on the drawn card is a prime number less than 20 is 7/51.

Q. A piggy bank contains hundred 50-p coins, seventy 1 coin, fifty Rs. 2 coins and thirty 5 coins. If it is equally likely that one of the coins will fall out when the bank is turned upside down, what is the probability that the coin

(i) will be a 1 coin

(ii) Will not be a 5 coin

(iii) Will be 50 - p or a 2 coin?

Solution:

Number of 50 paise coins = 100
Number of 1 rupee coins = 70
Number of 2 rupee coins = 50
Number of 5 rupee coins = 30
So, total number of coins = 100+70+50+30 = 250

or total outcomes = 250

(i) will be a 1 coin

favourable outcomes = number of 1 rupee coins = 70

Probability(getting 1 coin) = 70250=725

(ii) Will not be a 5 coin

favourable outcomes = total outcomes - chance of getting 5 coin = total outcomes - umber of 5 rupee coins = 250 - 30 = 220

Probability(not getting 5 coin) = 220250=2225

(iii) Will be 50 - p or a 2 coin

favourable outcomes = chance of getting 50p coin +chance of getting 2 coin = number of 50 paise coins + number of 2 coins -= 100 + 50 = 150

Probability(getting 0 - p or a 2 coin) = 150250=35

Q. The probability of selecting a red ball at random from a jar that contains only red, blue and orange balls is 14 . The probability of selecting a blue ball at random from the same jar is 13. If the jar contains 10 orange balls, find the total number of balls in the jar.

Solution:

We know,
P(getting red ball) = 1/4
P(getting blue ball) = 1/3
Let the no. of balls = x
Therefore, P(getting orange ball) = 10/x

We know,
P(getting red ball) + P(getting blue ball) + P(getting orange ball) = 1
⇒14+13+10x = 1
⇒ 10x = 1 -14 -13
⇒ 10x= 1 - 712
⇒ 10x =512
⇒10×12 = 5×x
⇒x = 24

Therefore, the no. of balls = x
= 24

Q. A jar contains 24 marbles. Some of these are green and others are blue. If a marble is drawn at random from the jar, the probability that it is green is 23. Find the number of blue marbles in the jar.

Solution:

Total number of marbles = 24

P(getting a green marble) = 2/3

No. of green marbles = 2/3 × 24 = 16

So, no. of blue marbles = 24 - 16 = 8

Q. A carton consists of 100 shirts of which 88 are good and 8 have minor defects, Rohit, a trader, will only accept the shirts which are good. But, Kamal, an another trader, will only reject the shirts which have major defects. One shirts is drawn at random from the carton. What is the probability that it is acceptable to (i) Rohit and (ii) Kamal?

Solution:

Total no. of shirts = 100

(i) No. of good shirts = 88

Probability that the shirt is acceptable to Rohit = 88/100 = 0.88

(ii) No. of shirts having major defect = 100 - 88 - 8 = 4

So, no. of shirts not having major defect = 100 - 4 = 96

Probability that the shirt is acceptable to Kamal = 96/100 = 0.96

Q. A group consists of 12 persons, of which 3 are extremely patient, other 6 are extremely honest and rest are extremely kind. A person from the group is selected at random. Assuming that each person is equally likely to be selected, find the probability of selecting a person who is (i) extremely patient, (ii) extremely kind or honest.

Solution:

Total number of persons = 12
So, the number of possible outcomes = 12

(i) Number of persons extremely patient = 3
Probability of the person being patient = 3/12 = 1/4

(ii) Number of persons extremely honest = 6
Number of persons extremely kind = 3
Number of persons extremely kind or honest = 3 + 6 = 9
Probability of the person being honest = 9/12 = 3/4

Q. A die is rolled twice, find the probability that
(i) 5 will not come up either time,
(ii) 5 will come up exactly one time,
(iii) 5 will come up both the times.

Solution:

Total number of outcomes = 6 × 6 = 36

(i)Total number of outcomes when 5 comes up on either time are (5, 1), (5, 2), (5, 3), (5, 4), (5, 5), (5, 6), (1, 5), (2, 5), (3, 5), (4, 5), (6, 5)

Hence, total number of favourable cases = 11

P (5 will come up either time) =1136

P (5 will not come up either time) =1−1136=2536

(ii)Total outcomes when 5 comes exactly one time are (5, 1), (5, 2), (5, 3), (5, 4), (5, 6), (1, 5), (2, 5), (3, 5), (4, 5), (6, 5)

No. of possible outcomes = 10

So, probability = 1036=518

(iii) The only possibility when 5 comes both the times is (5,5).

So, its probability = 136

Q. Two dice are rolled once. Find the probability of getting such numbers on two dice whose product is a perfect square.

Solution:

On throwing 2 dice the total number of outcomes is 36.
Out of these 36 outcomes we need to find the probability of getting the product of two numbers on the dices is a perfect square
Such outcomes are as shown:
(1, 1), (1, 4), (2, 2), (3, 3), (4, 1), (4, 4), (5, 5), (6, 6)
Number of favorable outcomes = 8
Probability of getting the numbers whose product is a perfect square on the dice = 8 / 36
= 2 / 9

Q. A letter is chosen at random from the letters of the word 'ASSOCIATION'. Find the probability that the chosen letter is a (i) vowel (ii) consonant (iii) an S.

Solution:

Number of letters in the given word =11

total number of vowels =6
Total number of consonants =5
No. of the letter 'S' = 2

so

(i) probability of getting a vowel =

(ii)probability of getting a consonent =

(iii)probability of letter chosen S=

Q. Five cards - the ten, jack, queen, king and ace of diamonds are well shuffled with their faces downwards. One card si then picked up at random. (a) What is the probability that the drawn card is the queen?
(b) If the queen is drawn and put aside and a second card is drawn, find the probability that the second card is (i) an ace, (ii) a queen.

Solution:

(a) No. of cards = 5
No. of queen=1
So, probability = 1/5

(b) If the queen is drawn and put aside and a second card is drawn, total no. of cards = 5-1 = 4
(i) No. of ace =1
It's probability = 1/4

(ii) No. of queen = 0
Its probability = 0

Q. What is the probability that an ordinary year has 53 Mondays?

Solution:

In a year there are 365 days that is, 52 weeks and 1 day
Hence, there will be 52 Mondays for sure.
52 weeks = 364 days
365 – 364 = 1 day
So, in an ordinary year (that is **not** a Leap year),
there will be 52 Mondays and 1 day will be left.
This that one day could be a
Monday or a Tuesday or a Wednesday or a Thursday or a Friday or a Saturday or a Sunday.
Of these total 7 outcomes, the favourable outcome is 1 **(which is MONDAY)**.

Hence, the probability of getting 53 Mondays =

Q. In a lottery, there are 8 prizes and 16 blanks. What is the probability of getting a prize?

(a) 12 (b) 13 (c) 23 (d) None of these

Solution:

(b) 1/3

total events= 8+16=24

favourable events=8

required
probabilty=8/24=1/3

Benefits of RS Aggarwal Solutions for Class 10 Maths Chapter 15 Exercise 15.2

- **Clear Explanations:** Each solution is explained in simple steps making it easy for students to understand the methods used to solve probability problems.
- **Expert Guidance:** The solutions are prepared by subject experts ensuring accurate and reliable answers.
- **Exam Preparation:** Practicing these solutions helps students prepare effectively for their board exams by strengthening their understanding of probability concepts.
- **Conceptual Clarity:** The detailed solutions help students grasp the fundamental concepts of probability, which is crucial for solving more complex problems.
- **Confidence Building:** By working through these problems, students can build their confidence in handling probability questions in exams.