

CBSE CLASS X

Mathematics Standard (041)

QUESTION PAPER

From previous CBSE Board Exam questions

Code: CYDFDR

Questions: 69

Maximum Marks: 116

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SELECTIONS USED

Source	Previous-year board
Subject	Mathematics
Lessons	Probability
Year	2022-2026
Questions selected	69

Composition — Types: 38 MCQ · 10 Very short · 8 Short · 7 Case-based · 6 Assertion–reason

Q1. § 13.4 Median of Grouped Data

[4]

BINGO is game of chance. The host has 75 balls numbered 1 through 75. Each player has a BINGO card with some numbers written on it. The participant cancels the number on the card when called out a number written on the ball selected at random. Whosoever cancels all the numbers on his/her card, says BINGO and wins the game. The table given below, shows the data of one such game where 48 balls were used before Tara said 'BINGO'.

Based on the above information, answer the following :

- (i) Write the median class. [1]
- (ii) When first ball was picked up, what was the probability of calling out an even number ? [1]
- (iii) Find median of the given data. [2]

Previously asked in: 2024 30/1/1 Q37

◆ Statistics

13.4 Median of Grouped Data

14.1 Probability — A Theoretical Approach

Q2. § Chapter Opening and Epigraph

[2]

In a pack of 52 playing cards one card is lost. From the remaining cards, a card is drawn at random. Find the probability that the drawn card is queen of heart, if the lost card is a black card.

Previously asked in: 2024 30/1/1 Q22

◆ Probability

14.1 Probability — A Theoretical Approach

Q3. § Chapter Opening and Epigraph § 14.1 Probability — A Theoretical Approach § 14.2 Summary

[1]

Two dice are rolled together. The probability of getting sum of numbers on the two dice as 2, 3 or 5, is :

- (a) $\frac{7}{36}$
- (b) $\frac{11}{36}$
- (c) $\frac{5}{36}$
- (d) $\frac{4}{9}$

Previously asked in: 2024 30/1/1 Q16

◆ Probability

14.1 Probability — A Theoretical Approach

Q4. § Chapter Opening and Epigraph § 14.1 Probability — A Theoretical Approach § 14.2 Summary**[1]**

From the data 1, 4, 7, 9, 16, 21, 25, if all the even numbers are removed, then the probability of getting at random a prime number from the remaining is :

- (a) $\frac{2}{5}$
- (b) $\frac{1}{5}$
- (c) $\frac{1}{7}$
- (d) $\frac{2}{7}$

Previously asked in: 2024 30/1/1 Q8

◆ **Probability** 14.1 Probability — A Theoretical Approach

Q5. § Chapter Opening and Epigraph**[1]**

If the probability of a player winning a game is 0.79, then the probability of his losing the same game is :

- (a) 1.79
- (b) 0.31
- (c) 0.21%
- (d) 0.21

Previously asked in: 2024 30/1/1 Q2

◆ **Probability** 14.1 Probability — A Theoretical Approach

Q6. § 14.2 Summary**[2]**

A bag contains 25 balls. Some of them are yellow and others are green. One ball is drawn at random. If probability of getting a green ball is $\frac{3}{5}$, then find the number of yellow balls.

Previously asked in: 2026 30/5/1 Q25

◆ **Probability** 14.1 Probability — A Theoretical Approach

Q7. § Chapter Opening and Epigraph § 14.2 Summary**[1]**

Meena calculates that the probability of her winning the first prize in a lottery is 0.08. If total 800 tickets were sold, the number of tickets bought by her, is

- (A) 64
- (B) 640
- (C) 100
- (D) 10

Previously asked in: 2026 30/5/1 Q16

◆ **Probability** 14.1 Probability — A Theoretical Approach

Q8. § Chapter Opening and Epigraph § 14.1 Probability — A Theoretical Approach**[1]**

A card is drawn at random from a well shuffled deck of 52 playing cards. The probability that it is either a ten or a king is

- (A) $\frac{1}{26}$
- (B) $\frac{2}{13}$
- (C) $\frac{1}{13}$
- (D) $\frac{8}{26}$

Previously asked in: 2026 30/5/1 Q11

◆ **Probability** 14.1 Probability — A Theoretical Approach

Q9. § 14.2 Summary

[1]

Which of the following can not be the probability of an event?

- (A) $\frac{39}{100}$
(B) $\frac{0.001}{20}$
(C) $\frac{10}{0.2}$
(D) 10%

Previously asked in: 2026 30/5/1 Q10

◆ Probability

14.1 Probability — A Theoretical Approach

Q10. § Chapter Opening and Epigraph § 14.1 Probability — A Theoretical Approach

[4]

"Eight Ball" is a game played on a pool table with 15 balls numbered 1 to 15 and a "cue ball" that is solid and white. Of the 15 numbered balls, eight are solid (non-white) coloured and numbered 1 to 8 and seven are striped balls numbered 9 to 15.

The 15 numbered pool balls (no cue ball) are placed in a large bowl and mixed, then one ball is drawn out at random.

Based on the above information, answer the following questions:

- (i) What is the probability that the drawn ball bears number 8? [1]
(ii) What is the probability that the drawn ball bears an even number? [2]
(iii) What is the probability that the drawn ball is a solid coloured and bears an even number? [1]

Previously asked in: 2023 30/6/1 Q38

◆ Probability

14.1 Probability — A Theoretical Approach

Q11. § Chapter Opening and Epigraph § 14.1 Probability — A Theoretical Approach

[1]

A card is drawn at random from a well shuffled deck of 52 playing cards. The probability of getting a face card is

- A $\frac{1}{2}$
B $\frac{3}{13}$
C $\frac{4}{13}$
D $\frac{1}{13}$

Previously asked in: 2023 30/6/1 Q15

◆ Probability

14.1 Probability — A Theoretical Approach

Q12. § Chapter Opening and Epigraph

[1]

A bag contains 5 pink, 8 blue and 7 yellow balls. One ball is drawn at random from the bag. What is the probability of getting neither a blue nor a pink ball?

- A $\frac{1}{4}$
B $\frac{2}{5}$
C $\frac{7}{20}$
D $\frac{13}{20}$

Previously asked in: 2023 30/6/1 Q11

◆ Probability

14.1 Probability — A Theoretical Approach

Q13. § Chapter Opening and Epigraph**[2]**

A bag contains 4 red, 3 blue and 2 yellow balls. One ball is drawn at random from the bag. Find the probability that drawn ball is (i) red (ii) yellow.

Previously asked in: 2023 30/1/1 Q25

◆ **Probability**

14.1 Probability — A Theoretical Approach

Q14. § Chapter Opening and Epigraph

§ 14.1 Probability — A Theoretical Approach

§ 14.2 Summary

[1]

In a group of 20 people, 5 can't swim. If one person is selected at random, then the probability that he/she can swim, is

- A $\frac{3}{4}$
B $\frac{1}{3}$
C 1
D $\frac{1}{4}$

Previously asked in: 2023 30/1/1 Q18

◆ **Probability**

14.1 Probability — A Theoretical Approach

Q15. § Chapter Opening and Epigraph

§ 14.2 Summary

[1]

A girl calculates that the probability of her winning the first prize in a lottery is 0.08. If 6000 tickets are sold, how many tickets has she bought ?

- A 40
B 240
C 480
D 750

Previously asked in: 2023 30/1/1 Q17

◆ **Probability**

14.1 Probability — A Theoretical Approach

Q16. § Chapter Opening and Epigraph

§ 14.2 Summary

[1]

Probability of happening of an event is denoted by p and probability of non-happening of the event is denoted by q. Relation between p and q is

- A $p + q = 1$
B $p = 1, q = 1$
C $p = q - 1$
D $p + q + 1 = 0$

Previously asked in: 2023 30/1/1 Q16

◆ **Probability**

14.1 Probability — A Theoretical Approach

Q17. § Chapter Opening and Epigraph**[2]**

The number of red balls in a bag is three more than the number of black balls. If the probability of drawing a red ball at random from the given bag is $\frac{12}{23}$, find the total number of balls in the given bag.

Previously asked in: 2025 30/6/1 Q25

◆ **Probability**

14.1 Probability — A Theoretical Approach

Q18. § 14.2 Summary

[1]

Directions: A statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

In an experiment of throwing a die,

Assertion (A): Event E_1 : getting a number less than 3 and Event E_2 : getting a number greater than 3 are complementary events.

Reason (R): If two events E and F are complementary events, then $P(E) + P(F) = 1$.

- A Both Assertion (A) and Reason (R) are true and Reason (R) is correct explanation of Assertion (A).
- B Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
- C Assertion (A) is true, but Reason (R) is false.
- D Assertion (A) is false, but Reason (R) is true.

Previously asked in: 2025 30/6/1 Q20

♦ Probability

14.1 Probability — A Theoretical Approach

Q19. § 14.1 Probability — A Theoretical Approach

[1]

Two coins are tossed simultaneously. The probability of getting atleast one head is

- A $\frac{1}{4}$
- B $\frac{1}{5}$
- C $\frac{3}{4}$
- D 1

Previously asked in: 2025 30/6/1 Q8

♦ Probability

14.1 Probability — A Theoretical Approach

Q20. § Chapter Opening and Epigraph § 14.1 Probability — A Theoretical Approach

[2]

While shuffling a pack of 52 cards, one card was accidently dropped. Find the probability that the dropped card

- (i) is not a face card.
- (ii) is a black king.

Previously asked in: 2025 30/5/1 Q25

♦ Probability

14.1 Probability — A Theoretical Approach

Q21. § 14.1 Probability — A Theoretical Approach § 14.2 Summary

[1]

The probability of getting a composite number greater than 3 on throwing a die is

- A $\frac{1}{6}$
- B $\frac{1}{3}$
- C $\frac{1}{2}$
- D $\frac{2}{3}$

Previously asked in: 2025 30/5/1 Q18

♦ Probability

14.1 Probability — A Theoretical Approach

Q22. § Chapter Opening and Epigraph**[1]**

A bag contains red balls and black balls in the ratio 3 : 7. A ball is drawn at random. The probability that ball so drawn is black in colour, is

- A $\frac{3}{7}$
- B 0.3
- C 0.7
- D $\frac{1}{7}$

Previously asked in: 2025 30/5/1 Q7

♦ Probability

14.1 Probability — A Theoretical Approach

Q23.**[2]**

Two friends Anil and Ashraf were born in the December month in the year 2010. Find the probability that :

- (i) they share same date of birth. [1]
- (ii) they have different dates of birth. [1]

Previously asked in: 2025 30/4/1 Q25

♦ Probability

14.1 Probability — A Theoretical Approach

Q24. § 14.1 Probability — A Theoretical Approach**[1]**

A pair of dice is thrown. The probability that sum of numbers appearing on top faces is at most 10 is :

- (a) $\frac{1}{11}$
- (b) $\frac{10}{11}$
- (c) $\frac{5}{6}$
- (d) $\frac{11}{12}$

Previously asked in: 2025 30/4/1 Q18

♦ Probability

14.1 Probability — A Theoretical Approach

Q25. § Chapter Opening and Epigraph § 14.2 Summary**[1]**

The number of red balls in a bag is 10 more than the number of black balls. If the probability of drawing a red ball at random from this bag is $\frac{3}{5}$, then the total number of balls in the bag is :

- (a) 50
- (b) 60
- (c) 80
- (d) 40

Previously asked in: 2025 30/4/1 Q5

♦ Probability

14.1 Probability — A Theoretical Approach

Q26. § Chapter Opening and Epigraph § 14.1 Probability — A Theoretical Approach § 14.2 Summary

[4]

A group of friends wanted to play cards with two identical packs together. While shuffling the cards, three cards are dropped. Rest of the cards are shuffled and one card is drawn at random. Assuming that the dropped cards were a queen of hearts, a ten of spades and an ace of clubs, answer the following questions:

Assuming that the dropped cards were a queen of hearts, a ten of spades and an ace of clubs, answer the following questions:

- (i) Find the probability that the drawn card is a face card. [1]
- (ii) Find the probability that the drawn card is either a king or a queen. [1]
- (iii) Do you think that the probability of getting a queen was higher if none of the cards were dropped? Justify your answer. [2]

Previously asked in: 2026 30/3/1 Q37

◆ **Probability** 14.1 Probability — A Theoretical Approach Probability with combined/modified decks of cards

Q27. § 14.1 Probability — A Theoretical Approach

[1]

Two dice are rolled together. The probability that the sum of the numbers obtained is divisible by 6, is :

- A $\frac{1}{6}$
- B $\frac{11}{36}$
- C $\frac{1}{12}$
- D $\frac{1}{4}$

Previously asked in: 2026 30/3/1 Q5

◆ **Probability** 14.1 Probability — A Theoretical Approach

Q28. § 14.1 Probability — A Theoretical Approach § 14.2 Summary

[3]

Two dice are thrown at the same time. Determine the probability that the (i) sum of the numbers on the two dice is 5, and (ii) difference of the numbers on the two dice is 3.

Previously asked in: 2026 30/2/1 Q31

◆ **Probability** 14.1 Probability — A Theoretical Approach

Q29. § Chapter Opening and Epigraph § 14.2 Summary

[1]

The probability for a randomly selected number out of 1, 2, 3, 4, ..., 25 to be a composite number is :

- A $\frac{15}{25}$
- B $\frac{10}{25}$
- C $\frac{11}{25}$
- D $\frac{9}{25}$

Previously asked in: 2026 30/2/1 Q18

◆ **Probability** 14.1 Probability — A Theoretical Approach

Q30. § 14.1 Probability — A Theoretical Approach

[3]

Two dice of different colours are thrown at the same time. Write down all the possible outcomes. What is the probability that :

- (i) same number appears on both the dice ?
- (ii) different number appears on both the dice ?

Previously asked in: 2026 30/1/1 Q31

◆ **Probability** 14.1 Probability — A Theoretical Approach

Q31. § 14.2 Summary

[1]

Directions: Two statements are given, one labelled as Assertion (A) and the other labelled as Reason (R). Select the correct answer from the codes (a), (b), (c) and (d).

Assertion (A) : The probability that a leap year has 53 Mondays is $\frac{2}{7}$.

Reason (R) : The probability that a non-leap year has 53 Mondays is $\frac{5}{7}$.

- (a) Both, Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
- (b) Both, Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
- (c) Assertion (A) is true, but Reason (R) is false.
- (d) Assertion (A) is false, but Reason (R) is true.

Previously asked in: 2026 30/1/1 Q19

◆ Probability

14.1 Probability — A Theoretical Approach

Q32. § 14.1 Probability — A Theoretical Approach § 14.2 Summary

[1]

A die is thrown once. Probability of getting a number other than 3 is :

- (a) $\frac{1}{6}$
- (b) $\frac{3}{6}$
- (c) $\frac{5}{6}$
- (d) 1

Previously asked in: 2026 30/1/1 Q18

◆ Probability

14.1 Probability — A Theoretical Approach

Q33. § 14.1 Probability — A Theoretical Approach

[4]

A middle school decided to run the following spinner game as a fund-raiser on Christmas Carnival.

Making Purple : Spin each spinner once. Blue and red make purple. So, if one spinner shows Red (R) and the other shows Blue (B), you win. Such an outcome is denoted as a win.

Based on the above, answer the following questions :

- (i) List all possible outcomes of the game. [1]
- (ii) Find the probability of making purple. [1]
- (iii) For each win, a participant gets ₹10, but if he/she loses, he/she has to pay ₹5 to the school. If 99 participants played, calculate how much fund could the school have collected. OR If the same amount of ₹5 has been decided for winning or losing the game, then how much fund had been collected by school ? (Number of participants = 99) [2]

Previously asked in: 2023 30/5/1 Q37

◆ Probability

14.1 Probability — A Theoretical Approach

Expected Value / Fund Collection using Probability

Q34. § Chapter Opening and Epigraph § 14.2 Summary

[1]

Which of the following numbers cannot be the probability of happening of an event ?

- (a) 0
- (b) 7
- (c) $0 \cdot 01$
- (d) $\frac{0 \cdot 07}{3}$

Previously asked in: 2023 30/5/1 Q17

◆ Probability

14.1 Probability — A Theoretical Approach

Q35. § 14.1 Probability — A Theoretical Approach

[1]

Two coins are tossed together. The probability of getting at least one tail is :

- (a) $\frac{1}{4}$
- (b) $\frac{1}{2}$
- (c) $\frac{3}{4}$
- (d) 1

Previously asked in: 2023 30/5/1 Q15

◆ Probability

14.1 Probability — A Theoretical Approach

Q36. § 14.1 Probability — A Theoretical Approach

[2]

If a fair coin is tossed twice, find the probability of getting 'atmost one head'.

Previously asked in: 2023 30/4/1 Q24

◆ Probability

14.1 Probability — A Theoretical Approach

Q37. § Chapter Opening and Epigraph § 14.2 Summary

[1]

Assertion (A) : The probability that a leap year has 53 Sundays is $\frac{2}{7}$.

Reason (R) : The probability that a non-leap year has 53 Sundays is $\frac{5}{7}$.

Choose the correct option :

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- (b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).
- (c) Assertion (A) is true but Reason (R) is false.
- (d) Assertion (A) is false but Reason (R) is true.

Previously asked in: 2023 30/4/1 Q19

◆ Probability

14.1 Probability — A Theoretical Approach

Probability related to days in a leap/non-leap year

Q38. § Chapter Opening and Epigraph § 14.1 Probability — A Theoretical Approach § 14.2 Summary

[1]

A card is drawn at random from a well-shuffled pack of 52 cards. The probability that the card drawn is not an ace is :

- (a) $\frac{1}{13}$
- (b) $\frac{13}{9}$
- (c) $\frac{13}{4}$
- (d) $\frac{13}{12}$

Previously asked in: 2023 30/4/1 Q18

◆ Probability

14.1 Probability — A Theoretical Approach

Q39. § 14.1 Probability — A Theoretical Approach

[1]

Two dice are thrown together. The probability of getting the difference of numbers on their upper faces equals to 3 is :

- (a) $\frac{1}{9}$
- (b) $\frac{2}{9}$
- (c) $\frac{1}{6}$
- (d) $\frac{1}{12}$

Previously asked in: 2023 30/4/1 Q11

◆ Probability

14.1 Probability — A Theoretical Approach

Q40. § Chapter Opening and Epigraph § 14.2 Summary

[4]

Computer-based learning (CBL) refers to any teaching methodology that makes use of computers for information transmission. At an elementary school level, computer applications can be used to display multimedia lesson plans. A survey was done on 1000 elementary and secondary schools of Assam and they were classified by the number of computers they had.

One school is chosen at random. Then:

- (i) Find the probability that the school chosen at random has more than 100 computers. [1]
- (ii) Find the probability that the school chosen at random has 50 or fewer computers. [2]
- (iii) Find the probability that the school chosen at random has 10 or less than 10 computers. [1]

Previously asked in: 2023 30/2/1 Q38

◆ Probability

14.1 Probability — A Theoretical Approach

Q41. § 14.1 Probability — A Theoretical Approach

[1]

If three coins are tossed simultaneously, what is the probability of getting at most one tail?

- (a) $\frac{3}{8}$
- (b) $\frac{4}{8}$
- (c) $\frac{5}{8}$
- (d) $\frac{1}{8}$

Previously asked in: 2023 30/2/1 Q11

◆ Probability

14.1 Probability — A Theoretical Approach

Q42. § Chapter Opening and Epigraph

[1]

A bag contains 100 cards numbered 1 to 100. A card is drawn at random from the bag. What is the probability that the number on the card is a perfect cube?

- (a) $\frac{1}{20}$
- (b) $\frac{3}{50}$
- (c) $\frac{1}{25}$
- (d) $\frac{7}{100}$

Previously asked in: 2023 30/2/1 Q7

◆ Probability

14.1 Probability — A Theoretical Approach

Q43. § 14.1 Probability — A Theoretical Approach**[3]**

Three unbiased coins are tossed simultaneously. Find the probability of getting :

- (i) at least one head. [1]
- (ii) exactly one tail. [1]
- (iii) two heads and one tail. [1]

Previously asked in: 2024 30/5/1 Q30

♦ Probability

14.1 Probability — A Theoretical Approach

Q44. § Chapter Opening and Epigraph**[2]**

A carton consists of 60 shirts of which 48 are good, 8 have major defects and 4 have minor defects. Nigam, a trader, will accept the shirts which are good but Anmol, another trader, will only reject the shirts which have major defects. One shirt is drawn at random from the carton. Find the probability that it is acceptable to Anmol.

Previously asked in: 2024 30/5/1 Q25

♦ Probability

14.1 Probability — A Theoretical Approach

Q45. § Chapter Opening and Epigraph § 14.1 Probability — A Theoretical Approach**[1]**

One ticket is drawn at random from a bag containing tickets numbered 1 to 40. The probability that the selected ticket has a number which is a multiple of 7 is :

- A $\frac{1}{7}$
- B $\frac{1}{8}$
- C $\frac{1}{57}$
- D $\frac{7}{40}$

Previously asked in: 2024 30/5/1 Q7

♦ Probability

14.1 Probability — A Theoretical Approach

Q46. § Chapter Opening and Epigraph § 14.1 Probability — A Theoretical Approach**[3]**

A box contains 90 discs which are numbered 1 to 90. If one disc is drawn at random from the box, find the probability that it bears a :

- (i) 2-digit number less than 40. [1]
- (ii) number divisible by 5 and greater than 50. [1]
- (iii) a perfect square number. [1]

Previously asked in: 2024 30/4/1 Q27(b) (OR-2)

♦ Probability

14.1 Probability — A Theoretical Approach

Q47. § 14.1 Probability — A Theoretical Approach**[3]**

Three coins are tossed simultaneously. What is the probability of getting

- (i) at least one head ? [1]
- (ii) exactly two tails ? [1]
- (iii) at most one tail ? [1]

Previously asked in: 2024 30/4/1 Q27(a) (OR-1)

♦ Probability

14.1 Probability — A Theoretical Approach

Q48. § Chapter Opening and Epigraph § 14.2 Summary**[1]**

For an event E , if $P(E) + P(\bar{E}) = q$, then the value of $q^2 - 4$ is :

- A -3
- B 3
- C 5
- D -5

Previously asked in: 2024 30/4/1 Q17

♦ Probability 14.1 Probability — A Theoretical Approach

Q49. § 14.1 Probability — A Theoretical Approach**[1]**

Two dice are tossed simultaneously. The probability of getting odd numbers on both the dice is :

- A $\frac{6}{36}$
- B $\frac{3}{36}$
- C $\frac{12}{36}$
- D $\frac{9}{36}$

Previously asked in: 2024 30/4/1 Q8

♦ Probability 14.1 Probability — A Theoretical Approach

Q50. § Chapter Opening and Epigraph § 14.1 Probability — A Theoretical Approach**[2]**

One card is drawn at random from a well shuffled deck of 52 cards. Find the probability that the card drawn

- (i) is queen of hearts; [1]
- (ii) is not a jack. [1]

Previously asked in: 2024 30/3/1 Q21

♦ Probability 14.1 Probability — A Theoretical Approach

Q51. § Chapter Opening and Epigraph § 14.1 Probability — A Theoretical Approach § 14.2 Summary**[1]**

If a digit is chosen at random from the digits 1, 2, 3, 4, 5, 6, 7, 8, 9; then the probability that this digit is an odd prime number is :

- A $\frac{1}{2}$
- B $\frac{3}{4}$
- C $\frac{9}{5}$
- D $\frac{5}{9}$

Previously asked in: 2024 30/3/1 Q15

♦ Probability 14.1 Probability — A Theoretical Approach

Q52. § 14.1 Probability – A Theoretical Approach § 14.2 Summary

[1]

The probability of guessing the correct answer to a certain test question is $\frac{x}{6}$. If the probability of not guessing the correct answer to this question is $\frac{2}{3}$, then the value of x is :

- A 2
- B 3
- C 4
- D 6

Previously asked in: 2024 30/3/1 Q4

◆ Probability 14.1 Probability – A Theoretical Approach

Q53. § 14.1 Probability – A Theoretical Approach

[1]

Two dice are thrown together. The probability that they show different numbers is :

- A $\frac{1}{6}$
- B $\frac{5}{6}$
- C $\frac{1}{3}$
- D $\frac{2}{3}$

Previously asked in: 2024 30/3/1 Q3

◆ Probability 14.1 Probability – A Theoretical Approach

Q54. § Chapter Opening and Epigraph

[4]

In a survey on holidays, 120 people were asked to state which type of transport they used on their last holiday. The following pie chart shows the results of the survey.

In a survey on holidays, 120 people were asked to state which type of transport they used on their last holiday. The following pie chart shows the results of the survey. Observe the pie chart and answer the following questions:

- (i) If one person is selected at random, find the probability that he/she travelled by bus or ship. [1]
- (ii) Which is most favourite mode of transport and how many people used it? [1]
- (iii) A person is selected at random. If the probability that he did not use train is $\frac{4}{5}$, find the number of people who used train. OR The probability that randomly selected person used aeroplane is $\frac{7}{60}$. Find the revenue collected by air company at the rate of ₹5,000 per person. [2]

Previously asked in: 2024 30/2/1 Q38

◆ Probability 14.1 Probability – A Theoretical Approach

Q55. § Chapter Opening and Epigraph

[1]

A box contains cards numbered 6 to 55. A card is drawn at random from the box. The probability that the drawn card has a number which is a perfect square, is

- (A) $\frac{7}{50}$
- (B) $\frac{7}{55}$
- (C) $\frac{1}{10}$
- (D) $\frac{5}{49}$

Previously asked in: 2024 30/2/1 Q13

◆ Probability 14.1 Probability – A Theoretical Approach

Q56. § Chapter Opening and Epigraph § 14.2 Summary**[1]**

Two dice are rolled together. The probability of getting the sum of the two numbers to be more than 10, is

- (A) $\frac{1}{9}$
- (B) $\frac{1}{6}$
- (C) $\frac{7}{12}$
- (D) $\frac{1}{12}$

Previously asked in: 2024 30/2/1 Q8

♦ Probability

14.1 Probability — A Theoretical Approach

Q57. § 14.1 Probability — A Theoretical Approach**[3]**

Three unbiased coins are tossed simultaneously. Find the probability of getting:

- (a) exactly two tails [1]
- (b) at least one head [1]
- (c) at most two heads [1]

Previously asked in: 2025 30/3/1 Q30

♦ Probability

14.1 Probability — A Theoretical Approach

Q58. § Chapter Opening and Epigraph § 14.1 Probability — A Theoretical Approach § 14.2 Summary**[2]**

The probability of guessing the correct answer of a certain test question is $\frac{x}{12}$. If the probability of not guessing the correct answer is $\frac{2}{3}$, then find the value of x .

Previously asked in: 2025 30/3/1 Q22

♦ Probability

14.1 Probability — A Theoretical Approach

Q59. § 14.1 Probability — A Theoretical Approach**[1]**

A die is thrown once. The probability of getting a number which is not a factor of 36, is:

- A $\frac{1}{6}$
- B $\frac{1}{3}$
- C $\frac{1}{2}$
- D $\frac{5}{6}$

Previously asked in: 2025 30/3/1 Q14

♦ Probability

14.1 Probability — A Theoretical Approach

Q60. § Chapter Opening and Epigraph § 14.1 Probability – A Theoretical Approach § 14.2 Summary

[4]

Rahul is a lucky charm for his cricket team. He has a jar of cards with numbers from 10 to 74. Before each match, he draws a card from the jar. If the card bears an even number, the team wins. If the number is even and divisible by 5, they win by a big margin. If the number is an odd number less than 30, they win by a small margin. And if the number is a prime number between 50 and 74, they lose.

Answer the following questions if Rahul draws a card today :

- (i) What is the probability that Rahul draws a card with an even number? [1]
- (ii) What is the probability that Rahul draws a card with an odd number less than 30? [1]
- (iii) What is the probability that Rahul draws a card with a prime number between 50 and 74? [2]

Previously asked in: 2025 30/2/1 Q37

♦ Probability 14.1 Probability – A Theoretical Approach

Q61. § Chapter Opening and Epigraph § 14.1 Probability – A Theoretical Approach

[1]

In a cricket match, a batsman hits the boundary 7 times out of the 42 balls he plays. The probability of his not hitting a boundary is :

- A $\frac{1}{6}$
- B $\frac{5}{6}$
- C $\frac{7}{9}$
- D $\frac{7}{42}$

Previously asked in: 2025 30/2/1 Q11

♦ Probability 14.1 Probability – A Theoretical Approach

Q62. § Chapter Opening and Epigraph § 14.2 Summary

[1]

The probability of drawing an even prime number out of numbers from 1 to 30 is :

- A $\frac{1}{30}$
- B $\frac{1}{15}$
- C $\frac{1}{10}$
- D 0

Previously asked in: 2025 30/2/1 Q2

♦ Probability 14.1 Probability – A Theoretical Approach

Q63. § 14.1 Probability – A Theoretical Approach

[3]

Two dice are thrown at the same time. Determine the probability that the difference of the numbers on the two dice is 2.

Previously asked in: 2025 30/1/1 Q31

♦ Probability 14.1 Probability – A Theoretical Approach

Q64. § 14.2 Summary

[1]

Assertion (A): The probability of selecting a number at random from the numbers 1 to 20 is 1.

Reason (R): For any event E , if $P(E) = 1$, then E is called a sure event.

Select the correct answer from the codes (A), (B), (C) and (D) given below.

- A Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
- B Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
- C Assertion (A) is true, but Reason (R) is false.
- D Assertion (A) is false, but Reason (R) is true.

Previously asked in: 2025 30/1/1 Q19

♦ Probability

14.1 Probability — A Theoretical Approach

Q65. § Chapter Opening and Epigraph § 14.1 Probability — A Theoretical Approach

[1]

A card is selected at random from a deck of 52 playing cards. The probability of it being a red face card is:

- A $\frac{3}{26}$
- B $\frac{3}{13}$
- C $\frac{1}{2}$
- D $\frac{13}{2}$

Previously asked in: 2025 30/1/1 Q13

♦ Probability

14.1 Probability — A Theoretical Approach

Q66.

[3]

A bag contains 30 balls out of which ' m ' number of balls are blue in colour.

- (i) Find the probability that a ball drawn at random from the bag is not blue. [1]
- (ii) If 6 more blue balls are added in the bag, then the probability of drawing a blue ball will be $\frac{5}{4}$ times the probability of drawing a blue ball in the first case. Find the value of m . [2]

Previously asked in: 2026 30/4/1 Q30

♦ Probability

14.1 Probability — A Theoretical Approach

Q67. § 14.2 Summary

[1]

Assertion (A): If probability of happening of an event is $0.2p$, $p > 0$, then p can't be more than 5.

Reason (R): $P(\bar{E}) = 1 - P(E)$ for an event E .

Select the correct answer from the options (A), (B), (C) and (D) as given below:

- A Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
- B Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
- C Assertion (A) is true, but Reason (R) is false.
- D Assertion (A) is false, but Reason (R) is true.

Previously asked in: 2026 30/4/1 Q19

♦ Probability

14.1 Probability — A Theoretical Approach

Q68. § Chapter Opening and Epigraph § 14.1 Probability — A Theoretical Approach**[1]**

Two different dice are rolled together. The probability that both the obtained numbers are less than 4, is

- A $\frac{2}{9}$
B $\frac{9}{36}$
C $\frac{1}{4}$
D $\frac{2}{3}$

Previously asked in: 2026 30/4/1 Q10

♦ Probability

14.1 Probability — A Theoretical Approach

Q69. § 14.2 Summary**[1]**

Assertion (A): In a cricket match, a batsman hits a boundary 9 times out of 45 balls he plays. The probability that in a given ball, he does not hit the boundary is $\frac{4}{5}$.

Reason (R): $P(E) + P(\text{not } E) = 1$

- A Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
B Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
C Assertion (A) is true, but Reason (R) is false.
D Assertion (A) is false, but Reason (R) is true.

Previously asked in: 2024 30/3/1 Q20

♦ Probability

14.1 Probability — A Theoretical Approach

Complementary Events: $P(E) + P(\text{not } E) = 1$

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