CLASS 10 MATHS NCERT SOLUTIONS

NCERT Solutions for Class 10 Maths Chapter 14 Probability (2026-27)

Class 10 Maths Chapter 14, Probability, has a single exercise (Exercise 14.1, 25 questions) in the current 2023-rationalised, 2026-27 session syllabus — the older optional Exercise 14.2 was removed in the rationalisation. Below are original, independently-derived solutions to all 25 questions. These Class 10 Mathe...

Contents

Class 10 Maths Chapter 14, **Probability**, has a single exercise (Exercise 14.1, 25 questions) in the current 2023-rationalised, 2026-27 session syllabus — the older optional Exercise 14.2 was removed in the rationalisation. Below are original, independently-derived solutions to all 25 questions. These Class 10 Mathematics Chapter 14 solutions are also useful as quick revision notes before exams.

Why This Chapter Matters for Boards

Probability is a short, high-scoring chapter that is almost entirely formula- and logic-based, using classic setups (coins, dice, cards, marbles) that repeat across CBSE board papers. Getting the total-outcomes count right (especially for two dice = 36, or a 52-card deck) is the single most common source of error.

Exercise 14.1 Solutions

Q1. Complete: (i) P(E)+P(not E)=___ (ii) P(impossible event)=___, called ___ (iii) P(sure event)=___, called ___ (iv) Sum of all elementary probabilities=___ (v) $0 \le P(E) \le$ ___
Solution: (i) 1 (ii) 0, impossible event (iii) 1, sure/certain event (iv) 1 (v) 0 and 1.

Q2. Which of these have equally likely outcomes: (i) car starts/doesn't (ii) basketball shot scores/misses (iii) true-false guess right/wrong (iv) baby born boy/girl?
Solution: (i) and (ii) are skill/condition-dependent, not equally likely. (iii) and (iv) are treated as **equally likely** at this level.

Q3. Why is a coin toss a fair way to decide which team starts a football match?
Solution: A coin has exactly 2 equally likely outcomes (head/tail), so neither team is favoured — each has probability 1/2.

Q4. Which cannot be a probability: (A) 2/3 (B) -1.5 (C) 15% (D) 0.7?
Solution: Probability must satisfy $0 \le P(E) \le 1$. **Answer: (B) -1.5** (negative, invalid).

Q5. If P(E)=0.05, find P(not E).
Solution: P(not E)=1-0.05=**0.95**.

Q6. A bag has only lemon-flavoured candies. Find P(orange) and P(lemon) on a random draw.
Solution: P(orange)=**0** (impossible); P(lemon)=**1** (certain).

Q7. P(2 students don't share a birthday)=0.992. Find P(they do share).
Solution: P(share)=1-0.992=**0.008**.

Q8. A bag has 3 red, 5 black balls. Find P(red) and P(not red).
Solution: Total=8. P(red)=3/8. P(not red)=1-3/8=**5/8**.

Q9. A box has 5 red, 8 white, 4 green marbles. Find P(red), P(white), P(not green).
Solution: Total=17. P(red)=5/17. P(white)=8/17. P(green)=4/17 $\Rightarrow$ P(not green)=**13/17**.

Q10. Piggy bank: 100 fifty-paisa, 50 one-rupee, 20 two-rupee, 10 five-rupee coins. Find P(50p) and P(not Rs5).
Solution: Total=180. P(50p)=100/180=**5/9**. P(Rs5)=10/180 $\Rightarrow$ P(not Rs5)=**17/18**.

Q11. Fish tank has 5 male, 8 female fish. Find P(male).
Solution: Total=13. P(male)=**5/13**.

Q12. A spinner points to 1-8 equally likely. Find P(8), P(odd), P(>2), P(<9).
Solution: Total=8. P(8)=1/8. P(odd)={1,3,5,7}=4/8=**1/2**. P(>2)=6/8=**3/4**. P(<9)=8/8=**1** (sure).

Q13. A die is thrown once. Find P(prime), P(strictly between 2 and 6), P(odd).
Solution: Total=6. Primes{2,3,5}=**1/2**. Between 2,6={3,4,5}=**1/2**. Odd{1,3,5}=**1/2**.

Q14. A card from 52. Find P(red king), P(face card), P(red face card), P(jack of hearts), P(spade), P(queen of diamonds).
Solution: P(red king)=2/52=**1/26**. P(face)=12/52=**3/13**. P(red face)=6/52=**3/26**. P(jack of hearts)=**1/52**. P(spade)=13/52=**1/4**. P(queen of diamonds)=**1/52**.

Q15. 5 diamond cards (10,J,Q,K,A) shuffled face down. (i) P(queen)? (ii) Queen removed; from remaining find P(ace), P(queen).
Solution: (i) 1/5. (ii) 4 left: P(ace)=1/4; P(queen)=**0** (already removed).

Q16. 12 defective pens mixed with 132 good ones. Find P(good).
Solution: Total=144. P(good)=132/144=**11/12**.

Q17. (i) 20 bulbs, 4 defective; find P(defective). (ii) One good bulb removed (not replaced); find P(non-defective) from rest.
Solution: (i) 4/20=**1/5**. (ii) 19 left, 4 defective, 15 good ⇒ **15/19**.

Q18. 90 discs numbered 1-90. Find P(two-digit), P(perfect square), P(divisible by 5).
Solution: Two-digit(10-90)=81 ⇒ **9/10**. Perfect squares{1,4,9,16,25,36,49,64,81}=9 ⇒ **1/10**. Multiples of 5=18 ⇒ **1/5**.

Q19. A die has faces A,B,C,D,E,A. Find P(A), P(D).
Solution: P(A)=2/6=**1/3**. P(D)=**1/6**.

Q20. A tile dropped on a 3m×2m region with a 1m-diameter circle inside. Find P(lands in circle).
Solution: Rectangle area=6 m^2. Circle area=$\pi(0.5)^2=\pi/4$. P=$(\pi/4)/6=$**π/24**.

Q21. 144 pens, 20 defective. Nuri buys only if good. Find P(buys), P(doesn't buy).
Solution: Good=124. P(buys)=124/144=**31/36**. P(doesn't buy)=20/144=**5/36**.

Q22. Two dice thrown. (i) Complete probability table for sums 2-12. (ii) Is claiming 11 equally-likely outcomes (each 1/11) correct?
Solution: Total outcomes=36 (not 11). Sums 2..12 have 1,2,3,4,5,6,5,4,3,2,1 ways respectively (out of 36). (ii) **Incorrect** — the 11 sums are not equally likely.

Q23. Coin tossed 3 times; Hanif wins if all 3 match (HHH/TTT). Find P(Hanif loses).
Solution: Total=8. Winning={HHH,TTT}=2. P(loses)=6/8=**3/4**.

Q24. A die thrown twice. Find P(5 doesn't occur on either throw), P(5 occurs at least once).
Solution: Total=36. Avoiding 5 both times=5×5=25 ⇒ **25/36**. At least one 5=1-25/36=**11/36**.

Q25. Are these arguments correct? (i) Two coins give 3 outcomes so each has P=1/3. (ii) A die gives 2 outcomes (odd/even) so P(odd)=1/2.
Solution: (i) **Incorrect** — actual outcomes are HH,HT,TH,TT (4), so P(2 heads)=1/4, P(1 each)=1/2. (ii) **Correct** (coincidentally) — die has 6 equally likely faces, 3 odd, so P(odd)=1/2.

CBSE Exam Weightage

This chapter falls under **Unit VII: Statistics and Probability** in the CBSE Class 10 Maths board exam syllabus. This unit typically carries around **11 marks (13.75%)** of the 80-mark theory paper, based on CBSE's published unit-wise weightage (Question Paper Design). CBSE sets weightage at the unit level rather than chapter-by-chapter, so the exact share from this specific chapter can vary a little between years and sample papers.

Class 10 Mathematics Chapter 14 – Notes and Extra Questions

Along with these NCERT Solutions, students can also use the Class 10 Mathematics Chapter 14 Extra Questions and Class 10 Mathematics Chapter 14 Revision Notes for quick revision and extra practice.