MATHS WITHOUT GUESSWORK · BOARD BOOSTER

Probability

LOCK THE SURE MARKS.
STRETCH FOR THE TOP.
PRACTISE THE BOARD WAY.

A board-exam practice companion for **CBSE Class 10 Mathematics**
Syllabus session 2026–27 · Standard (041)

🛡️ Secure Track | 🚀 Stretch Track | ~88 questions + 3 mini-mocks

One formula — count, then divide

P(E)	0 to 1	1 − P
favourable ÷ total	every probability lies here	the complement, P(not E)

Original questions and solutions. Answers kept separate. Not a substitute for the NCERT textbook or your teacher.

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Probability in the board paper

Know exactly how many marks are really at stake here — so you spend your effort where the paper pays.

◆ UNDERSTAND THE OFFICIAL NUMBER This chapter sits inside **Unit VII — Statistics & Probability, worth 11 marks**, shared with Statistics. Probability is a **reliable 3–5 marks** — usually a 1-mark MCQ or two, plus a short- or long-answer "find the probability of ..." question with several parts. It is one of the most **scoring** chapters: one formula, careful counting. CBSE publishes weightage per unit, not per chapter.

Where those marks usually fall (PYQ trend — based on past papers, not official)

Form it takes	Typical marks	What it tests
1–2 MCQ / Assertion-Reason	1–2	The 0–1 range, a complement, a single die/coin/card
A VSA or SA	2–3	P(E) for a die, a bag of balls, a pack of cards
A 5-mark LA	5	A multi-part "find P(i)...(v)..." on dice, cards or numbers
A case study	4	A game, a lucky draw, a jar of marbles, a forecast

★ SPOT THE CLUE WHAT'S IN THE 2026–27 SCOPE In scope: **theoretical probability of a single event** with equally likely outcomes, **complementary events**, and **impossible / sure events** with the **0 ≤ P(E) ≤ 1** range. **No deletions.** Keep it to classical probability by counting — no experimental-data estimates are asked in the board question.

Q7 A die is rolled. P(a number greater than 4) is: A. 1/3 B. 1/2 C. 2/3 D. 1/6

1 PART-GUIDED ★

Q8 A die is rolled. P(a prime number) is: A. 1/2 B. 1/3 C. 2/3 D. 1/6

1 PART-GUIDED ★

Q9 Two coins are tossed together. P(two heads) is: A. 1/2 B. 1/4 C. 1/3 D. 3/4

1 PART-GUIDED ★

Q10 Two coins are tossed. P(at least one head) is: A. 1/4 B. 1/2 C. 3/4 D. 1

1 PART-GUIDED ★

Q11 A card is drawn from 52. P(a king) is: A. 1/13 B. 1/4 C. 1/52 D. 4/13

1 GUIDED ★

Q12 A card is drawn from 52. P(a red card) is: A. 1/4 B. 1/2 C. 1/13 D. 3/13

1 GUIDED ★

Q13 A card is drawn. P(a face card) is: A. 3/13 B. 1/13 C. 12/13 D. 1/4

1 PART-GUIDED ★

Q14 A card is drawn. P(the ace of spades) is: A. 1/52 B. 1/13 C. 1/4 D. 1/26

1 GUIDED

Q15 A number is chosen from 1 to 20. P(a prime number) is: A. 2/5 B. 1/2 C. 1/4 D. 3/10

1 INDEPENDENT ★

Q16 A bag has 5 red and 3 black balls. P(a red ball) is: A. 5/8 B. 3/8 C. 5/3 D. 1/2

1 PART-GUIDED ★

Q17 Two dice are rolled. P(a sum of 7) is: A. 1/6 B. 1/12 C. 5/36 D. 7/36

1 INDEPENDENT ★

Q18 Two dice are rolled. P(a doublet) is: A. 1/6 B. 1/12 C. 1/36 D. 1/3

1 PART-GUIDED ★

Q19 If the probability of winning a game is 0.3, the probability of not winning is: A. 0.3 B. 0.7 C. 1.3 D. 0.5

1 GUIDED ★

Q20 A die is rolled. P(a multiple of 3) is: A. 1/3 B. 1/2 C. 1/6 D. 2/3

1 GUIDED

Q21 Which of these cannot be the probability of an event? A. 0.7 B. 3/5 C. 1.2 D. 0

1 PART-GUIDED ★

Q22 A card is drawn. P(a black queen) is: A. 1/26 B. 1/13 C. 2/13 D. 1/52

1 PART-GUIDED ★

Q23 Cards numbered 1–15 are drawn at random. P(a multiple of 4) is: A. 1/5 B. 1/3 C. 4/15 D. 1/4

1 INDEPENDENT ★

Q24 A letter is chosen at random from the word PROBABILITY. P(the letter B) is: A. 2/11 B. 1/11 C. 3/11 D. 1/2

1 INDEPENDENT ★

Very Short Answer (2-mark) set

16 two-mark questions. Fix the total, count the favourable, simplify. Worked solutions in the Answer Key.

Q1 A die is thrown once. Find P(an odd number).

2 GUIDED ★

Q2 Two coins are tossed. Find P(exactly one head).

2 PART-GUIDED ★

Q3 A card is drawn from a deck of 52. Find P(a spade).

2 GUIDED ★

Q4 If P(E) = 3/7, find P(not E).

2 GUIDED

Q5 A die is thrown. Find P(a number less than 3).

2 PART-GUIDED

Q6 A bag has 4 red and 6 white balls. Find P(a white ball).

2 GUIDED ★

Q7 Two dice are thrown. Find P(a sum of 9).

2 INDEPENDENT ★

Q8 A card is drawn from a deck. Find P(a red face card).

2 PART-GUIDED ★

Q9 A number is chosen from 1 to 25. Find P(a multiple of 5).

2 PART-GUIDED

Case studies (4-mark)

8 source-based cases, each 1 + 1 + 2 marks. Fix the total first, then count each part. Solutions in the Answer Key.

Case 1 — The coin game

4 marks

Two friends toss two coins together to decide who starts a game.

(i) How many possible outcomes are there?

1

(ii) List all the outcomes.

1

(iii) Find P(at least one head).

2

Case 2 — The board game die

4 marks

A player rolls a fair die to move on a board.

(i) Find P(rolling a 6).

1

(ii) Find P(an even number).

1

(iii) Find P(a number greater than 4).

2

Answer Key

Kept at the back on purpose — so a parent needn't teach. The recurring facts are written out once; the drills get the count, the answer and the likely slip.

Model counts (learn these once)

The formula. $P(E)$ = favourable ÷ total, with all outcomes equally likely. Always simplify, and check $0 \le P(E) \le 1$. Use $P(\text{not } E) = 1 - P(E)$ when the opposite is easier to count. **The total and the favourable count are the marks.**

One die (6 outcomes). even = 3 {2,4,6}; odd = 3; prime = 3 {2,3,5}; composite = 2 {4,6}; multiples of 3 = 2 {3,6}; factors of 6 = 4 {1,2,3,6}; >4 = 2 {5,6}. Remember 1 is neither prime nor composite.

Two dice (36 outcomes). sum 7 → 6; sum 8 → 5; sum 9 → 4; sum ≤ 4 → 6; sum ≥ 10 → 6; sum 12 → 1; doublets → 6; both even → 9; at least one 6 → 11.

A deck (52 cards). 13 per suit; 26 red, 26 black; 12 face cards (J, Q, K × 4); 4 aces; 4 of each rank; number cards 2–10 → 36. Coins: two → 4 outcomes, three → 8.

Section 6 — MCQ & Assertion-Reason

Q	Ans	Why
Q1	**A**	1 head of 2 outcomes = 1/2.
Q2	**B**	A sure event has probability 1.
Q3	**A**	An impossible event has probability 0.

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- **MCQ and Assertion-Reason.** 30 one-mark questions
- **Very Short Answer.** 16 two-mark questions
- **Short Answer.** 14 three-mark questions
- **Long Answer.** 10 five-mark questions
- **Case studies.** 8 four-mark source-based cases
- **HOTS and trickiest variations.** 10 questions
- **Timed mini-mocks and Answer Key.** 3 single-chapter mini-mocks; every question has its answer, kept at the back

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