



# CLASS 9 MATHEMATICS



## CHAPTER 7 – THE MATHEMATICS OF MAYBE: INTRODUCTION TO PROBABILITY



MCQ WORKSHEET | Ganita Manjari | 2026–27

Name: \_\_\_\_\_

Class: IX      Section: \_\_\_\_\_

Date: \_\_\_\_\_



### Instructions

- Choose the **one correct answer**.
  - Attempt all questions.
  - **Total: 40 MCQs**
- 



## PART A – BASIC PROBABILITY

**1. Probability is used to measure:**

- A. The size of an object
- B. The likelihood of an event
- C. The length of an event
- D. The number of objects only

**2. An experiment whose outcome cannot be predicted with certainty is called a:**

- A. Mathematical experiment
- B. Random experiment
- C. Fixed experiment
- D. Geometrical experiment

**3. Which of the following is a random experiment?**

- A. Finding  $2 + 3$
- B. Tossing a coin
- C. Multiplying  $5 \times 5$
- D. Finding the perimeter of a square

**4. The complete set of all possible outcomes of a random experiment is called:**

- A. Event
- B. Sample space
- C. Trial
- D. Frequency

**5. The probability of an impossible event is:**

- A. 0
- B. 1
- C.  $1/2$
- D.  $-1$

**6. The probability of a certain event is:**

- A. 0
- B.  $1/4$
- C.  $1/2$
- D. 1

**7. The probability of an event  $E$  always satisfies:**

- A.  $P(E) < 0$
- B.  $P(E) > 1$
- C.  $0 \leq P(E) \leq 1$
- D.  $P(E) = 2$

**8. Which of the following can be the probability of an event?**

- A.  $-0.5$
  - B.  $1.5$
  - C.  $0.75$
  - D.  $2$
-

## PART B – SAMPLE SPACE & EVENTS

**9. When a coin is tossed once, the sample space is:**

- A.  $\{H\}$
- B.  $\{T\}$
- C.  $\{H, T\}$
- D.  $\{HT\}$

**10. When a die is rolled once, the number of possible outcomes is:**

- A. 4
- B. 5
- C. 6
- D. 8

**11. The sample space when a die is rolled once is:**

- A.  $\{0, 1, 2, 3, 4, 5\}$
- B.  $\{1, 2, 3, 4, 5, 6\}$
- C.  $\{2, 4, 6\}$
- D.  $\{1, 3, 5\}$

**12. When a coin is tossed twice, the number of possible outcomes is:**

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

**13. The sample space for two coin tosses is:**

- A.  $\{H, T\}$
- B.  $\{HH, TT\}$
- C.  $\{HH, HT, TH, TT\}$
- D.  $\{HT, TH\}$

**14. An event is:**

- A. Always the entire sample space
- B. One or more outcomes of a random experiment

- C. Always an impossible outcome
- D. A number greater than 1

**15. When a die is rolled, which is an event?**

- A. Getting a number greater than 4
  - B. Getting a number 7
  - C. Getting a number less than 0
  - D. Getting a number 10
- 

## **PART C – THEORETICAL PROBABILITY**

**16. If all outcomes are equally likely, theoretical probability is:**

- A. Total outcomes/Favourable outcomes
- B. Favourable outcomes/Total possible outcomes
- C. Favourable outcomes  $\times$  Total outcomes
- D. Total outcomes - Favourable outcomes

**17. A fair coin is tossed once. The probability of getting heads is:**

- A. 0
- B.  $1/4$
- C.  $1/2$
- D. 1

**18. A fair die is rolled once. The probability of getting 6 is:**

- A.  $1/2$
- B.  $1/3$
- C.  $1/6$
- D.  $5/6$

**19. A fair die is rolled once. The probability of getting an even number is:**

- A.  $1/6$
- B.  $1/3$

- C.  $1/2$
- D.  $2/3$

**20. A fair die is rolled once. The probability of getting a number greater than 4 is:**

- A.  $1/6$
- B.  $1/3$
- C.  $1/2$
- D.  $2/3$

**21. A fair die is rolled once. The probability of getting an odd number is:**

- A.  $1/6$
- B.  $1/3$
- C.  $1/2$
- D.  $5/6$

**22. A card is selected from a set of 10 equally likely cards numbered 1 to 10. The probability of selecting 7 is:**

- A.  $1/2$
  - B.  $1/5$
  - C.  $1/10$
  - D.  $7/10$
- 

## **PART D – EXPERIMENTAL PROBABILITY**

**23. Experimental probability is based on:**

- A. Actual results of an experiment
- B. Only mathematical formulas
- C. Guesswork
- D. Geometry

**24. The formula for experimental probability is:**

- A. Number of trials/Number of successes
- B. Number of times event occurs/Total number of trials
- C. Total trials  $\times$  Event frequency
- D. Total trials - Event frequency

**25. A coin is tossed 50 times and heads occurs 28 times. The experimental probability of heads is:**

- A.  $28/50$
- B.  $22/50$
- C.  $50/28$
- D.  $1/50$

**26. A die is rolled 100 times and the number 4 occurs 18 times. The experimental probability of getting 4 is:**

- A.  $18/100$
- B.  $82/100$
- C.  $4/100$
- D.  $100/18$

**27. If an experiment is repeated many times, experimental probability generally:**

- A. Becomes greater than 1
- B. Gives information about the likelihood of the event
- C. Always becomes 0
- D. Cannot be calculated

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## PART E – COMPLEMENT & PROBABILITY

**28. If the probability of event E is  $P(E)$ , the probability that E does not occur is:**

- A.  $P(E)$
- B.  $1 + P(E)$

- C.  $1 - P(E)$
- D.  $P(E) - 1$

**29. If  $P(E) = 3/5$ , then  $P(\text{not } E)$  is:**

- A.  $1/5$
- B.  $2/5$
- C.  $3/5$
- D.  $4/5$

**30. The probability of getting a number other than 6 when a fair die is rolled is:**

- A.  $1/6$
- B.  $2/6$
- C.  $5/6$
- D.  $6/6$

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## PART F – TABLES & TREE DIAGRAMS

**31. A tree diagram is useful for:**

- A. Finding the perimeter of a circle
- B. Showing possible outcomes of multi-stage experiments
- C. Measuring angles
- D. Finding the area of a triangle

**32. A coin is tossed twice. How many branches/outcomes are represented at the end of the tree diagram?**

- A. 2
- B. 3
- C. 4
- D. 8

**33. A coin is tossed twice. The probability of getting two heads is:**

- A.  $1/2$
- B.  $1/3$
- C.  $1/4$
- D.  $3/4$

**34. A coin is tossed twice. The probability of getting exactly one head is:**

- A.  $1/4$
- B.  $1/2$
- C.  $3/4$
- D. 1

**35. A bag contains 3 red balls and 2 blue balls. One ball is selected, replaced, and another ball is selected. The probability of getting red both times is:**

- A.  $3/5$
  - B.  $6/25$
  - C.  $9/25$
  - D.  $4/25$
- 

## **PART G – HIGHER-ORDER MCQs**

**36. A bag contains 4 red, 3 blue and 3 green balls. One ball is selected randomly. The probability that it is not blue is:**

- A.  $3/10$
  - B.  $4/10$
  - C.  $7/10$
  - D.  $6/10$
- 

**37. A fair die is rolled once. Which event has probability  $1/2$ ?**

- A. Getting 6
- B. Getting an even number

- C. Getting a number greater than 5
  - D. Getting 1
- 

**38. A coin is tossed three times. How many possible outcomes are there?**

- A. 3
  - B. 6
  - C. 8
  - D. 9
- 

**39. A fair coin is tossed three times. The probability of getting three heads is:**

- A.  $1/2$
  - B.  $1/4$
  - C.  $1/6$
  - D.  $1/8$
- 

**40. A box contains 5 red and 5 blue balls. One ball is selected randomly. If the selected ball is replaced and another is selected, the probability of getting one red and one blue in either order is:**

- A.  $1/4$
  - B.  $1/2$
  - C.  $3/4$
  - D. 1
- 

## **BONUS CHALLENGE**

**41. A fair die is rolled twice. What is the probability that the sum is 7?**

- A.  $1/12$
- B.  $1/6$

- C.  $1/4$
- D.  $1/3$

**42. A bag contains 2 red, 3 blue and 5 green balls. The probability of selecting a green ball is:**

- A.  $1/5$
- B.  $1/2$
- C.  $3/5$
- D.  $5/10$

**43. If an event has probability 0, it is:**

- A. Certain
- B. Likely
- C. Impossible
- D. Equally likely

**44. If an event has probability 1, it is:**

- A. Impossible
- B. Certain
- C. Unlikely
- D. Random

**45. Which statement is correct?**

- A. Experimental and theoretical probability are always exactly equal
- B. Experimental probability is based on actual trials
- C. Probability can be greater than 1
- D. An impossible event has probability 1



## ANSWER KEY

| Q | Ans | Q  | Ans | Q  | Ans | Q  | Ans | Q  | Ans |
|---|-----|----|-----|----|-----|----|-----|----|-----|
| 1 | B   | 10 | C   | 19 | C   | 28 | C   | 37 | B   |
| 2 | B   | 11 | B   | 20 | B   | 29 | B   | 38 | C   |

|   |          |    |          |    |          |    |          |    |          |
|---|----------|----|----------|----|----------|----|----------|----|----------|
| 3 | <b>B</b> | 12 | <b>C</b> | 21 | <b>C</b> | 30 | <b>C</b> | 39 | <b>D</b> |
| 4 | <b>B</b> | 13 | <b>C</b> | 22 | <b>C</b> | 31 | <b>B</b> | 40 | <b>B</b> |
| 5 | <b>A</b> | 14 | <b>B</b> | 23 | <b>A</b> | 32 | <b>C</b> | 41 | <b>B</b> |
| 6 | <b>D</b> | 15 | <b>A</b> | 24 | <b>B</b> | 33 | <b>C</b> | 42 | <b>B</b> |
| 7 | <b>C</b> | 16 | <b>B</b> | 25 | <b>A</b> | 34 | <b>B</b> | 43 | <b>C</b> |
| 8 | <b>C</b> | 17 | <b>C</b> | 26 | <b>A</b> | 35 | <b>C</b> | 44 | <b>B</b> |
| 9 | <b>C</b> | 18 | <b>C</b> | 27 | <b>B</b> | 36 | <b>C</b> | 45 | <b>B</b> |

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## CHAPTER 7 QUICK REVISION



### Random Experiment

An experiment whose outcome cannot be predicted with certainty.



### Sample Space

The set of **all possible outcomes**.

Example:

$$S = \{H, T\}$$

for one coin toss.



### Event

One or more outcomes of a random experiment.



### Theoretical Probability

$P(E) = \text{Number of favourable outcomes} / \text{Total number of equally likely outcomes}$



### Experimental Probability

$P(E) = \text{Number of times event occurs} / \text{Total number of trials}$

### Probability Range

$$0 \leq P(E) \leq 1$$

### Impossible Event

$$P(E) = 0$$

### Certain Event

$$P(E) = 1$$

### Complement

$$P(\text{not } E) = 1 - P(E)$$

### Tree Diagram

Useful for listing and analysing outcomes of experiments involving **two or more stages**.

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## SCORE

40–45:  Probability Master!

34–39:  Excellent!

27–33:  Very Good!

20–26:  Revise Chapter 7!

Below 20:  Practise more probability questions!