Class 9 Mathematics – Chapter: Probability

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1. Introduction

Probability is the measure of how likely an event is to occur. It ranges from 0 (impossible event) to 1 (certain event).

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2. Basic Terms

- Experiment: Any action that gives some outcome (e.g., tossing a coin).
- Outcome: A possible result of an experiment.
- Sample Space: The set of all possible outcomes.

Example: Tossing a coin Sample space = {Head, Tail}

- Event: One or more outcomes of an experiment.

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3. Probability Formula (Empirical)

Probability of an event (P)=Number of favorable outcomesTotal number of outcomes\text{Probability of an event (P)} = \frac{\text{Number of favorable outcomes}}{\text{Total number of outcomes}}
Probability of an event (P)=Total number of outcomesNumber of favorable outcomes

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4. Example Situations

Throwing a Die

- Sample space: {1, 2, 3, 4, 5, 6} 6 outcomes

- P(getting an even number) = 3/6 = 1/2

🪙 Tossing a Coin

- Sample space: {H, T} ⇒ 2 outcomes
- P(getting a Head) = 1/2

🃏 Drawing a Card from Deck

- Total cards = 52
- P(drawing a red card) = 26/52 = 1/2

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5. Important Points

 Probability is always a number between 0 and 1.
 If P(E) = 0, the event never happens.
 If P(E) = 1, the event always happens.
 Sum of probabilities of all possible outcomes = 1.

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6. Tips for Exams

- Use correct sample space.
- Simplify fractions.
- Write final answer with proper reasoning.

- Practice basic questions from coins, dice, cards, and number picking.