

A Coin Will Be Tossed Three Times, And Each Toss Will Be Recorded As Heads (H) Or Tails (T). Give The

Introduction

A coin will be tossed three times, and each toss will be recorded as Heads (H) or Tails (T). Give the a comprehensive understanding of the possible outcomes, probability distributions, and significance of this experiment. Coin tossing is a fundamental example in probability theory, illustrating basic principles such as sample space, events, and calculating probabilities. This article explores the various aspects of this experiment, including the total possible outcomes, their probabilities, and how to analyze the results systematically.

Understanding the Sample Space

Defining the Sample Space

The sample space in probability refers to the set of all possible outcomes of an experiment. When tossing a coin three times, each toss has two possible outcomes: Heads (H) or Tails (T). Since each toss is independent, the total number of outcomes is calculated by multiplying the possibilities for each toss:

- Number of outcomes per toss: 2
- Number of tosses: 3
- Total outcomes: $2 \times 2 \times 2 = 8$

Enumerating All Outcomes

All possible sequences of three coin tosses can be explicitly listed:

1. HHH