Empirical Probability Distribution and Expected Value

Today's Standard

HSS.MD.A4 - (+) Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?

Cues	Notes
What is a probability distribution?	A probability distribution shows all possible outcomes of a random variable and their probabilities.
How is expected value calculated?	Expected value is calculated as the sum of all possible values multiplied by their probabilities.
What is empirical probability?	Empirical probability is based on observed data from experiments or real-world observations.
Difference between empirical and theoretical probability?	Empirical probability uses actual data; theoretical probability uses mathematical models.
Examples of real-world applications?	Examples include predicting product demand, assessing risk in finance, and estimating average attendance.

Summary

This standard involves creating probability distributions from empirical data and calculating expected values. It is crucial for making informed predictions in various real-world contexts.