Proactive Instruction

Cornell Notes

Expected Payoff in Games of Chance

Today's Standard

HSS.MD.B5a - Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fast-food restaurant.

Cues	Notes
What is expected value?	Expected value is the average outcome of a random event over many trials.
How to calculate expected payoff?	To calculate expected payoff, multiply each outcome by its probability and sum the results.
Examples of expected value in real life?	Real-life examples include lottery winnings, casino games, insurance policies, and stock market returns.
Difference between expected value and mode?	Expected value is a weighted average; mode is the most frequent outcome.
Common misconceptions about expected value?	Misconceptions: Expected value guarantees a specific outcome; expected value is the most likely outcome.

Summary

Expected value represents the average outcome of a random event over many trials. It is calculated by summing the products of each outcome and its probability. This concept is widely applicable in real life, from lotteries to insurance. Common misconceptions include confusing expected value with guaranteed outcomes or the most likely outcome.