



Conditional Probability and Independence

Today's Standard

HSS.CP.A3 - Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.

Cues	Notes
Conditional Probability	Conditional probability is the probability of event A occurring given that event B has occurred.
Independence	Independence means the occurrence of one event does not affect the probability of the other.
$P(A \text{ and } B)/P(B)$	$P(A \text{ and } B)/P(B)$ is the formula for conditional probability.
$P(A B) = P(A)$	If A and B are independent, then the conditional probability of A given B is the same as the probability of A.
$P(B A) = P(B)$	Similarly, for independent events, the conditional probability of B given A is the same as the probability of B.

Summary

Understanding conditional probability involves calculating the probability of one event given another. Independence means that the occurrence of one event does not affect the other. Mastery of these concepts is essential for advanced probability and statistical analysis.