3.10: Chapter Key Terms

Key Term	Definition
Conditional Probability	the likelihood that an event will occur given that another event has already occurred
Contingency Table	the method of displaying a frequency distribution as a table with rows and columns to show how two variables may be dependent (contingent) upon each other; the table provides an easy way to calculate conditional probabilities.
Dependent Events	If two events are NOT independent, then we say that they are dependent.
Equally Likely	Each outcome of an experiment has the same probability.
Event	a subset of the set of all outcomes of an experiment; the set of all outcomes of an experiment is called a sample space and is usually denoted by S. An event is an arbitrary subset in S. It can contain one outcome, two outcomes, no outcomes (empty subset), the entire sample space, and the like. Standard notations for events are capital letters such as A, B, C, and so on.
Experiment	a planned activity carried out under controlled conditions
Independent Events	The occurrence of one event has no effect on the probability of the occurrence of another event. Events A and B are independent if one of the following is true: 1. $P(A\|B) = P(A)$ 2. $P(B\|A) = P(B)$ 3. $P(A \cap B) = P(A)P(B)$
Mutually Exclusive	Two events are mutually exclusive if the probability that they both happen at the same time is zero. If events A and B are mutually exclusive, then $P(A \cap B) = 0$.
Outcome	a particular result of an experiment
Probability	a number between zero and one, inclusive, that gives the likelihood that a specific event will occur; the foundation of statistics is given by the following 3 axioms (by A.N. Kolmogorov, 1930's): Let S denote the sample space and A and B are two events in S. Then: • $0 \leq P(A) \leq 1$ • If A and B are any two mutually exclusive events, then $P(A \cup B) = P(A) + P(B)$. • $P(S) = 1$
Sample Space	the set of all possible outcomes of an experiment
Sampling with Replacement	If each member of a population is replaced after it is picked, then that member has the possibility of being chosen more than once.
Sampling without Replacement	When sampling is done without replacement, each member of a population may be chosen only once.
The Complement Event	The complement of event A consists of all outcomes that are NOT in A.
The Conditional Probability of $A\|B$	P(A||B) is the probability that event A will occur given that the event B has already occurred.
The Intersection: the ∩ Event	An outcome is in the event |(A \cap B\) if the outcome is in both $A \cap B$ at the same time.
The Union: the ∪ Event	An outcome is in the event $A \cup B$ if the outcome is in A or is in B or is in both A and B.
Tree Diagram	the useful visual representation of a sample space and events in the form of a "tree" with branches marked by possible outcomes together with associated probabilities (frequencies, relative frequencies)
Venn Diagram	the visual representation of a sample space and events in the form of circles or ovals showing their intersections