

3.7: Chapter 3 Review

3.1 Terminology

In this module we learned the basic terminology of probability. The set of all possible outcomes of an experiment is called the sample space. Events are subsets of the sample space, and they are assigned a probability that is a number between zero and one, inclusive.

3.2 Independent and Mutually Exclusive Events

Two events A and B are **independent** if the knowledge that one occurred does not affect the chance the other occurs. If two events are not independent, then we say that they are **dependent**.

In sampling with replacement, each member of a population is replaced after it is picked, so that member has the possibility of being chosen more than once, and the events are considered to be independent. In sampling without replacement, each member of a population may be chosen only once, and the events are considered not to be independent.

Events A and B are **mutually exclusive** events when they do not have any outcomes in common.

3.3 Two Basic Rules of Probability

The multiplication rule and the addition rule are used for computing the probability of A and B , as well as the probability of A or B for two given events A, B defined on the sample space. See the Formula Review section for details.

3.4 Contingency Tables and Probability Trees

There are several tools you can use to help organize and sort data when calculating probabilities. **Contingency tables** help display data and are particularly useful when calculating probabilities that have multiple dependent variables.

Tree diagrams use branches to show the different outcomes of experiments and make complex probability questions easy to visualize.

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