

7.6: Key Terms

Key Term	Definition
Average	a number that describes the central tendency of the data; there are a number of specialized averages, including the arithmetic mean, weighted mean, median, mode, and geometric mean.
Central Limit Theorem	Given a random variable with known mean μ and known standard deviation, σ , we are sampling with size n , and we are interested in two new RVs: the sample mean, \bar{X} . If the size (n) of the sample is sufficiently large, then $\bar{X} \sim N\left(\mu, \frac{\sigma}{\sqrt{n}}\right)$. If the size (n) of the sample is sufficiently large, then the distribution of the sample means will approximate a normal distributions regardless of the shape of the population. The mean of the sample means will equal the population mean. The standard deviation of the distribution of the sample means, $\frac{\sigma}{\sqrt{n}}$, is called the standard error of the mean.
Finite Population Correction Factor	adjusts the variance of the sampling distribution if the population is known and more than 5% of the population is being sampled.
Mean	a number that measures the central tendency; a common name for mean is "average." The term "mean" is a shortened form of "arithmetic mean." By definition, the mean for a sample (denoted by \bar{x}) is $\bar{x} = \bar{x} = \frac{\text{Sum of all values in the sample}}{\text{Number of values in the sample}}$, and the mean for a population (denoted by μ) is $\mu = \frac{\text{Sum of all values in the population}}{\text{Number of values in the population}}$.
Normal Distribution	a continuous random variable with pdf $f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$, where μ is the mean of the distribution and σ is the standard deviation.; notation: $X \sim N(\mu, \sigma)$. If $\mu = 0$ and $\sigma = 1$, the random variable, Z , is called the standard normal distribution .
Sampling Distribution	Given simple random samples of size n from a given population with a measured characteristic such as mean, proportion, or standard deviation for each sample, the probability distribution of all the measured characteristics is called a sampling distribution.
Standard Error of the Mean	the standard deviation of the distribution of the sample means, or $\frac{\sigma}{\sqrt{n}}$.
Standard Error of the Proportion	the standard deviation of the sampling distribution of proportions

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