Chapter 8

Interval Estimate (Confidence Interval) of a Population Mean: σ Known

$$\bar{x} \pm z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$$

Interval Estimate of a Population Mean: σ Unknown,

$$\bar{x} \pm t_{\alpha/2} \frac{s}{\sqrt{n}}$$

Interval Estimate of a Population Proportion

$$\bar{p} \pm z_{\alpha/2} \sqrt{\frac{\bar{p}(1-\bar{p})}{n}}$$

Margin of Error for Estimating Population Mean: σ Known

$$E = z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$$

Margin of Error for Estimating Population Mean: σ Unknown

$$E = t_{\alpha/2} \frac{s}{\sqrt{n}}$$

Margin of Error for Estimating Population Proportion:

$$E = z_{\alpha/2} \sqrt{\frac{\bar{p}(1-\bar{p})}{n}}$$

Sample Size for an Interval Estimate of a Population Mean

$$n = \frac{(z_{\alpha/2})^2 \sigma^2}{E^2}$$

Sample Size for an Interval Estimate of a Population Proportion

$$n = \frac{(z_{\alpha/2})^2 \ \bar{p}(1-\bar{p})}{E^2}$$

Chapter 9

Test Statistic (z) for Hypothesis Tests, Population Mean: σ Known

$$z = \frac{\bar{x} - \mu_0}{\sigma/\sqrt{n}}$$

Test Statistic (t) for Hypothesis Tests, Population Mean: σ Unknown

$$t = \frac{\bar{x} - \mu_0}{s/\sqrt{n}}$$

Test Statistic (z) for Hypothesis Tests, Population Proportion

$$z = \frac{\bar{p} - p_0}{\sqrt{\frac{p_0(1-p_0)}{n}}}$$

Finding $\bar{x}_\alpha$, σ known

$$\bar{x}_\alpha = \mu + z_\alpha \frac{\sigma}{\sqrt{n}}$$

Power of a Test

$$\boldsymbol{power = 1 - \beta}$$