$$\bar{x} \pm z_{\frac{\alpha}{2}} \frac{\sigma}{\sqrt{n}} \quad \text{or} \quad \bar{x} \pm t_{\frac{\alpha}{2}, n-1} \frac{s}{\sqrt{n}}$$

$$\left(\bar{x}_1 - \bar{x}_2\right) \pm t_{\frac{\alpha}{2}, df} \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}} \quad \text{where}$$

$$df = \frac{\left(s_1^2/n_1 + s_2^2/n_2\right)^2}{\dfrac{\left(s_1^2/n_1\right)^2}{n_1 - 1} + \dfrac{\left(s_2^2/n_2\right)^2}{n_2 - 1}} \quad \text{or}$$

$$\left(\bar{x}_1 - \bar{x}_2\right) \pm t_{\frac{\alpha}{2}, n_1 + n_2 - 2} s_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}} \quad \text{where}$$

$$s_p = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

Chapter 9

$$z_0 = \frac{\bar{x} - \mu_0}{\dfrac{\sigma}{\sqrt{n}}} \quad \text{or} \quad t_0 = \frac{\bar{x} - \mu_0}{\dfrac{s}{\sqrt{n}}}$$

$$z_0 = \frac{p - \pi_0}{\sqrt{\dfrac{\pi_0(1 - \pi_0)}{n}}} \quad \text{or} \quad z_0 = \frac{x - n\pi_0}{\sqrt{n\pi_0(1 - \pi_0)}}$$

Chapter 10

$$t_0 = \frac{\bar{D} - \mu_D}{\dfrac{s_D}{\sqrt{n}}} \quad \text{where} \quad \bar{D} = \frac{\sum\limits_{i=1}^{n} d_i}{n} \quad \text{and}$$

$$s_D = \sqrt{\frac{\sum\limits_{i=1}^{n}\left(d_i - \bar{D}\right)^2}{n - 1}}$$

$$z_0 = \frac{\left(\bar{x}_1 - \bar{x}_2\right) - \left(\mu_1 - \mu_2\right)}{\sqrt{\dfrac{\sigma_1^2}{n_1} + \dfrac{\sigma_2^2}{n_2}}}$$

$$t_0 = \frac{\left(\bar{x}_1 - \bar{x}_2\right) - \left(\mu_1 - \mu_2\right)}{s_p \sqrt{\dfrac{1}{n_1} + \dfrac{1}{n_2}}}$$

$$t_0 = \frac{\left(\bar{x}_1 - \bar{x}_2\right) - \left(\mu_1 - \mu_2\right)}{\sqrt{\dfrac{s_1^2}{n_1} + \dfrac{s_2^2}{n_2}}}$$

If $\bar{p} = \dfrac{n_1 p_1 + n_2 p_2}{n_1 + n_2} = \dfrac{x_1 + x_2}{n_1 + n_2}$ then

$$z = \frac{\left(p_1 - p_2\right) - \left(\pi_1 - \pi_2\right)}{\sqrt{\bar{p}(1 - \bar{p})\left(\dfrac{1}{n_1} + \dfrac{1}{n_2}\right)}}$$

$$F_{STAT} = \frac{s_1^2}{s_2^2} \quad \text{with}$$

$$df_1 = n_1 - 1 \quad \text{and} \quad df_2 = n_2 - 1.$$

Chapter 12

$$\chi_{stat}^2 = \sum_{j=1}^{r} \sum_{i=1}^{c} \frac{\left(O_{ij} - e_{ij}\right)^2}{e_{ij}} \quad df = (c - 1)(r - 1)$$

$$\left|p_i - p_j\right| > \sqrt{\chi_\alpha^2} \sqrt{\frac{p_i(1 - p_i)}{n_i} + \frac{p_j(1 - p_j)}{n_j}}$$

$$Z_0 = \frac{B - C}{\sqrt{B + C}}$$