Chapter 6 Formula Sheet

See Chapter Summary Tables on pages 440-442

$$\bar{x} \pm z\frac{s}{\sqrt{n}}$$

$$n = \left(\frac{zs}{\Delta}\right)^2$$

$$Z = \frac{\bar{x} - \#}{\frac{s}{\sqrt{n}}}$$

$$\bar{x} \pm t\frac{s}{\sqrt{n}}$$

$$T = \frac{\bar{x} - \#}{\frac{s}{\sqrt{n}}}$$

$$\bar{d} \pm z\frac{s_d}{\sqrt{n}} \quad \text{and} \quad \bar{d} \pm t\frac{s_d}{\sqrt{n}}$$

$$Z = \frac{\bar{d} - \#}{\frac{s_d}{\sqrt{n}}} \quad \text{and} \quad T = \frac{\bar{d} - \#}{\frac{s_d}{\sqrt{n}}}$$

$$\bar{x}_1 - \bar{x}_2 \pm z\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$$

$$Z = \frac{\bar{x}_1 - \bar{x}_2 - \#}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

$$\bar{x}_1 - \bar{x}_2 \pm ts_{\mathrm{P}}\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}$$

$$T = \frac{\bar{x}_1 - \bar{x}_2 - \#}{s_{\mathrm{P}}\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$\hat{\nu} = \frac{\left(\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}\right)^2}{\frac{s_1^4}{(n_1-1)n_1^2} + \frac{s_2^4}{(n_2-1)n_2^2}}$$

$$\bar{x}_1 - \bar{x}_2 \pm \hat{t}\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$$

$$\frac{(n-1)s^2}{U} \qquad \text{and} \qquad \frac{(n-1)s^2}{L}$$

$$X^2 = \frac{(n-1)s^2}{\#}$$

$$Q_{\nu_1,\nu_2}(p) = \frac{1}{Q_{\nu_2,\nu_1}(1-p)}$$

$$\frac{s_1^2}{U \cdot s_2^2} \qquad \text{and} \qquad \frac{s_1^2}{L \cdot s_2^2}$$

$$F = \frac{s_1^2/s_2^2}{\#}$$

$$\hat{p} \pm z\frac{1}{2\sqrt{n}} \quad \text{or} \quad \hat{p} \pm z\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$$

$$Z = \frac{\hat{p} - \#}{\sqrt{\frac{\#(1-\#)}{n}}}$$

$$n = \left(\frac{z}{2\Delta}\right)^2$$

$$\hat{p}_1 - \hat{p}_2 \pm z \cdot \frac{1}{2}\sqrt{\frac{1}{n_1} + \frac{1}{n_2}} \quad \text{or} \quad \hat{p}_1 - \hat{p}_2 \pm z\sqrt{\frac{\hat{p}_1(1-\hat{p}_1)}{n_1} + \frac{\hat{p}_2(1-\hat{p}_2)}{n_2}}$$

$$Z = \frac{\hat{p}_1 - \hat{p}_2}{\sqrt{\hat{p}(1-\hat{p})}\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \quad \text{with} \quad \hat{p} = \frac{n_1\hat{p}_1 + n_2\hat{p}_2}{n_1 + n_2}$$

$$\bar{x} \pm ts\sqrt{1 + \frac{1}{n}}$$

$$\bar{x} \pm \tau_2 s$$

$(-\infty, \bar{x} + \tau_1 s)$ or $(\bar{x} - \tau_1 s, \infty)$

$(-\infty, \max(x_1, \ldots, x_n))$ or $(\min(x_1, \ldots, x_n), \infty)$ with

One-sided prediction confidence level $= \dfrac{n}{n+1}$

One-sided confidence level $= 1 - p^n$ as a TI

$(\min(x_1, \ldots, x_n), \max(x_1, \ldots, x_n))$ with

Two-sided prediction confidence level $= \dfrac{n-1}{n+1}$

Two-sided confidence level $= 1 - p^n - n(1-p)p^{n-1}$ as a TI