Formula Sheet - Exam I

$$\bar{x} \pm z_{\alpha/2}\frac{\sigma}{\sqrt{n}}, \qquad \bar{x} \pm t_{\alpha/2}(n-1)\frac{s}{\sqrt{n}}, \qquad \frac{\bar{D}}{s_D/\sqrt{n}}$$

$$\frac{(\bar{x}_1 - \bar{x}_2)}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}}, \qquad \frac{(\bar{x}_1 - \bar{x}_2)}{\sqrt{s_p^2(\frac{1}{n_1} + \frac{1}{n_2})}}, \; s_p^2 = \frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1 + n_2 - 2}$$

$$\hat{p} \pm z_{\alpha/2}\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}, \qquad (\hat{p}_1 - \hat{p}_2) \pm z_{\alpha/2}\sqrt{\frac{\hat{p}_1(1-\hat{p}_1)}{n_1} + \frac{\hat{p}_2(1-\hat{p}_2)}{n_2}}$$

$$\frac{\hat{p}_1 - \hat{p}_2}{\sqrt{\hat{p}(1-\hat{p})\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}, \qquad \left(\frac{(n-1)s^2}{\chi^2_{\alpha/2}(n-1)}, \frac{(n-1)s^2}{\chi^2_{1-\alpha/2}(n-1)}\right)$$

$$\sum_i \frac{(obs_i - exp_i)^2}{exp_i}, \qquad \sum_{i=1}^{k} \frac{(Y_i - np_{i0})^2}{np_{i0}}, \qquad \sum_{i=1}^{a}\sum_{j=1}^{b} \frac{(y_{ij} - n\hat{p}_{i\cdot}\hat{p}_{\cdot j})^2}{n\hat{p}_{i\cdot}\hat{p}_{\cdot j}}$$