Formula's:

1 Sample Z test

$$\bar{x} \sim N(\mu, \frac{\sigma}{\sqrt{n}}) \qquad \text{Confidence Interval: } \bar{x} \pm Z^* \left(\frac{\sigma}{\sqrt{n}}\right)$$

1 Sample T test

$$\bar{x} \sim N(\mu, \frac{S_x}{\sqrt{n}}) \qquad \text{Confidence Interval: } \bar{x} \pm t^* \left(\frac{S_x}{\sqrt{n}}\right) \qquad \text{df: n} - 1$$

2 Sample T test

$$\bar{x}_1 - \bar{x}_2 \sim N(\mu_1 - \mu_2, \sqrt{\frac{S_{x1}^2}{n_1} + \frac{S_{x2}^2}{n_2}}) \quad \text{Confidence Interval: } (\bar{x}_1 - \bar{x}_2) \pm t^* \sqrt{\frac{S_{x1}^2}{n_1} + \frac{S_{x2}^2}{n_2}}$$

$$\text{df: } \frac{\left(\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}\right)^2}{\frac{1}{n_1 - 1}\left(\frac{s_1^2}{n_1}\right)^2 + \frac{1}{n_2 - 1}\left(\frac{s_2^2}{n_2}\right)^2} \quad \text{or provided by calculator.}$$

Paired T test

$$\text{Difference} \sim N(\mu, \frac{S_{difference}}{\sqrt{n}}) \quad \text{Same as one sample t}$$

1 Proportion Z test

$$\hat{p} \sim N(p, \sqrt{\frac{p(1-p)}{n}}) \qquad \text{Confidence interval: } \hat{p} \pm Z^* \sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$$

2 Proportion Z test

$$\hat{p}_1 - \hat{p}_2 \sim N(p_1 - p_2, \quad \sqrt{\left(\frac{\hat{p}_1(1-\hat{p}_1)}{n_1} + \frac{\hat{p}_2(1-\hat{p}_2)}{n_2}\right)})$$

$$\text{Confidence interval: } (p_1 - p_2) \pm Z^* \sqrt{\left(\frac{\hat{p}_1(1-\hat{p}_1)}{n_1} + \frac{\hat{p}_2(1-\hat{p}_2)}{n_2}\right)}$$