$$z = \frac{(\bar{x}-\mu)\sqrt{n}}{\sigma} \text{ or } t_{n-1} = \frac{(\bar{x}-\mu)\sqrt{n}}{s}$$

$$z = \frac{\bar{p}-p}{\sqrt{\frac{p(1-p)}{n}}} \text{ where } \bar{p} = \frac{x}{n}$$

- $\bar{x} \pm t_{\frac{\alpha}{2},n-1} \frac{s}{\sqrt{n}}$
- $n \geq \frac{z_{\alpha/2}^2 \sigma^2}{e^2} = \left(\frac{z_{\alpha/2}\,\sigma}{e}\right)^2$
- $\bar{p} \pm z_{\alpha/2}\sqrt{\frac{\bar{p}(1-\bar{p})}{n}}$
- $n \geq \frac{z_{\alpha/2}^2\,\pi(1-\pi)}{e^2}$
- $(\bar{x}_1 - \bar{x}_2) \pm z_{\alpha/2}\sqrt{\frac{\sigma_1^2}{n_1}+\frac{\sigma_2^2}{n_2}}$
- $(\bar{x}_1 - \bar{x}_2) \pm z_{\alpha/2}\sqrt{\frac{s_1^2}{n_1}+\frac{s_2^2}{n_2}}$
- $(\bar{x}_1 - \bar{x}_2) \pm t_{\frac{\alpha}{2},n_1+n_2-2}\; s_p \sqrt{\frac{1}{n_1}+\frac{1}{n_2}}$, where

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

- $(\bar{x}_1 - \bar{x}_2) \pm t_{\alpha/2,\,v}\sqrt{\frac{s_1^2}{n_1}+\frac{s_2^2}{n_2}}$, where

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

- $\bar{d} \pm t_{\frac{\alpha}{2},n-1} \frac{s_d}{\sqrt{n}}$

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

$$\bar{p}_1 = \frac{x_1}{n_1}, \qquad \bar{p}_2 = \frac{x_2}{n_2}$$

$$d_i = x_{1i} - x_{2i}$$

$$t_{n-1} = \frac{\bar{d}-\mu_d}{\frac{s_d}{\sqrt{n}}} \text{ where } \bar{d} = \frac{\sum_{i=1}^{n} d_i}{n} \text{ and}$$

$$s_d = \sqrt{\frac{\sum_{i=1}^{n}(d_i-\bar{d})^2}{n-1}}.$$

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

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

$$t_{n_1+n_2-2} = \frac{(\bar{x}_1-\bar{x}_2)-(\mu_1-\mu_2)}{s_p\sqrt{\frac{1}{n_1}+\frac{1}{n_2}}}$$

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

$$t_{df} = \frac{(\bar{x}_1-\bar{x}_2)-(\mu_1-\mu_2)}{\sqrt{\frac{s_1^2}{n_1}+\frac{s_2^2}{n_2}}}$$

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

If $\bar{p} = \frac{n_1\bar{p}_1+n_2\bar{p}_2}{n_1+n_2} = \frac{x_1+x_2}{n_1+n_2}$

$$z = \frac{(\bar{p}_1-\bar{p}_2)-(p_1-p_2)}{\sqrt{\bar{p}(1-\bar{p})\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}}$$