$\hat{y} = a + bx$

Residual = data – model OR Residual = observed – predicted

$z = \frac{x - \mu}{\sigma}$ (Model based) $z = \frac{x - \bar{x}}{s}$ (Data based)

$x = \mu + z\sigma$

Statistics	$\bar{x}$	$\bar{x}$	$\bar{x}_1 - \bar{x}_2$
Sampling Distribution	σ known	σ NOT known	
Mean	$\mu(\bar{x}) = \mu$	$\mu(\bar{x}) = \mu$	
Standard Deviation (σ known)	$\sigma(\bar{x}) = \frac{\sigma}{\sqrt{n}}$		
Standard Error		$SE(\bar{x}) = \frac{s}{\sqrt{n}}$	$SE = \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$
Confidence Interval	$\bar{x} \pm z^* \left(\frac{\sigma}{\sqrt{n}} \right)$	$\bar{x} \pm t_{df}^* \left(\frac{s}{\sqrt{n}} \right)$	$(\bar{x}_1 - \bar{x}_2) \pm t_{df}^* SE$
Sample Size	$n = \left(\frac{z^* \sigma}{ME} \right)^2$		
Test Statistic	$z = \frac{\bar{x} - \mu}{\frac{\sigma}{\sqrt{n}}}$	$t = \frac{\bar{x} - \mu}{\frac{s}{\sqrt{n}}}$	$t = \frac{(\bar{x}_1 - \bar{x}_2)}{SE}$