CONFIDENCE INTERVALS

	Cases	***Distribution:*** ***Normal*** **or** ***t***	**(1-α)% Confidence Interval**
A.	**Confidence Interval for μ** (population mean)		
	(1) σ known	Normal	$\bar{x} \pm z_{\alpha/2} \cdot \frac{\sigma}{\sqrt{n}}$
	(2) σ unknown, n≥30	Normal (<u>or</u> *t*: d.f.=n-1)	$\bar{x} \pm z_{\alpha/2} \cdot \frac{s}{\sqrt{n}}$
	(3) σ unknown, n<30	*t* d.f.=n-1	$\bar{x} \pm t_{\alpha/2} \cdot \frac{s}{\sqrt{n}}$
B.	**Confidence Interval for μ_1 - μ_2** (difference in population means)		
	(1) σ_1 and σ_2 known	Normal	$(\bar{x}_1 - \bar{x}_2) \pm z_{\alpha/2} \cdot \sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}$
	(2) σ_1 and σ_2 unknown, $n_1 \geq 30$ and $n_2 \geq 30$	Normal (<u>or</u> *t*: d.f.= n_1+n_2-2)	$(\bar{x}_1 - \bar{x}_2) \pm z_{\alpha/2} \cdot \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$
	(3) σ_1 and σ_2 unknown, $n_1 < 30$ and $n_2 < 30$	*t* d.f.=n_1+n_2-2	$(\bar{x}_1 - \bar{x}_2) \pm t_{\alpha/2} \cdot \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$

<u>Notations:</u>
$\bar{x}$ = Sample mean
μ = Population mean
s = Sample standard deviation
σ = Population standard deviation