Steps for Making a Confidence interval

	Proportions		Means	
	7.1 1propZinterval	9.1 2propZinterval	7.2 Tinterval	9.2 2sampTinterval
1) Requirements Simple Random Sample (SRS) & Large Enough	n· $p > 5, n \cdot q > 5$	$n_1 \cdot p_1 > 5$ $n_1 \cdot q_1 > 5$ $n_2 \cdot p_2 > 5$ $n_2 \cdot q_2 > 5$	n>30 or population normal	n1,n2 > 30 or population normal
2) Summary Statistics	n = sample size x = number of successes	n_1, x_1, n_2, x_2	$\bar{x}$ = sample mean s=sample standard deviation n= sample size	$\bar{x}_1, s_1, n_1; \bar{x}_2, s_2, n_2$
3) Point Estimate: Our best guess of population parameter based on sample	PE: $\hat{p} = \frac{x}{n}$	PE: $\hat{p}_1 - \hat{p}_2 = \frac{x_1}{n_1} - \frac{x_2}{n_2}$	PE: $\bar{x}$	$PE: \bar{x}_2 - \bar{x}_2$
4) Critical value The Z-score or T-Score that will correspond to the confidence level, CL	$\alpha = 1 - CL$ $z_{\alpha/2} = invnorm\left(1 - \frac{\alpha}{2}, 0, 1\right)$		$\alpha = 1 - CL$ $t_{\alpha/_2} = invT\left(1 - \frac{\alpha}{2}, df\right)$	
5) Margin of Error Maximum likely difference between Population parameter and sample statistic.	$E = z_{\alpha/2}\sqrt{\frac{\hat{p}\hat{q}}{n}}$	2PropZinterval	$E = t_{\alpha/2}\left(\frac{s}{\sqrt{n}}\right)$	2SampTinterval
6) Confidence interval	$\hat{p} - E < p < \hat{p} + E$	$\hat{p}_1 - \hat{p}_2 - E < p_1 - p_2 < \hat{p}_1 - \hat{p}_2 + E$	$\bar{x} - E < \mu < \bar{x} + E$	$\bar{x}_2 - \bar{x}_2 < \mu_1 - \mu_2 < \bar{x}_2 - \bar{x}_2$
7) Write Sentence: We are CL confident that the true ……. is between LB and UB	population proportion	difference in the population proportions	population mean	difference in population means
Finding Sample Size	$n = \frac{z_{\alpha/2}^2 \hat{p}\hat{q}}{E^2}$ $n = \frac{z_{\alpha/2}^2 \cdot 0.25}{E^2}$		$n = \left(\frac{z_{\alpha/2} \cdot s}{E}\right)^2$	