7.9: Chapter 7 Formulas

Confidence Interval for One Proportion $\hat{p} \pm z_{\frac{\alpha}{2}} \sqrt{\left(\frac{\hat{p}\hat{q}}{n}\right)}$ $\hat{p} = \frac{x}{n}$ $\hat{q} = 1 - \hat{p}$ TI-84: 1-PropZInt	**Sample Size for Proportion** $n = p^* \cdot q^* \left(\frac{z_{\alpha/2}}{E}\right)^2$ Always round up to whole number. If p is not given use p* = 0.5. E = Margin of Error
Confidence Interval for One Mean Use z-interval when σ is given. Use t-interval when s is given. If n < 30, population needs to be normal.	**Z-Confidence Interval** $\bar{x} \pm z_{\frac{\alpha}{2}} \left(\frac{\sigma}{\sqrt{n}}\right)$ TI-84: ZInterval
Z-Critical Values Excel: $z_{\alpha/2}$ =NORM.INV(1–area/2,0,1) TI-84: $z_{\alpha/2}$ = invNorm(1–area/2,0,1)	**t-Critical Values** Excel: $t_{\alpha/2}$ =T.INV(1–area/2,*df*) TI-84: $t_{\alpha/2}$ = invT(1–area/2,*df*)
t-Confidence Interval $\bar{x} \pm t_{\alpha/2} \left(\frac{s}{\sqrt{n}}\right)$ *df* = n – 1 TI-84: TInterval	**Sample Size for Mean** $n = \left(\frac{z_{\alpha/2} \cdot \sigma}{E}\right)^2$ Always round up to whole number. E = Margin of Error