Review – Unit IV

Name:_____

Significance Tests Steps:

1) **Define the parameter**

   p = **the proportion of…(the population).. that…(does what?)..**

   Or

   μ = **the mean….**

   Write hypotheses (symbols and words)

   $H_o : p =$ $\quad\quad$ $H_o : \mu =$

   $H_a : p >, <, or \neq$ $\quad\quad$ $H_a : \mu >, <, or \neq$

2) **CLT – describe the sampling distribution**

   Shape – normal IF conditions are met (verify they are met!)

   Center = p_o *or* μ_o

   Spread – calculate standard deviation

   Draw a sketch!!!!

4) **Find the test statistic (z or t) and p-value (probability)**

5) **Write a conclusion**

   Interpret your p-value.

   Is p-value significant and at what level?

   Reject H_o **(small p-value) or fail to reject** H_o

   Refer to conditions – SRS and sample size – are you assuming anything – do you have reason to doubt the validity of the test?

   Make a conclusion IN CONTEXT!!!!!!

	Proportions	Mean
CLT Describes the sampling distribution – all possible samples of size n. Shape, Center, Spread	Approximately normal - if conditions are met Mean of $\hat{p} = \mu_{\hat{p}} = p$ Standard deviation of $\hat{p} = \sigma_{\hat{p}} = \sqrt{\frac{p(1-p)}{n}}$	Approximately normal – if conditions are met Mean of $\bar{x} = \mu_{\bar{x}} = \mu$ Standard deviation of $\bar{x} = \sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$
Conditions	$np \geq 10$ *and* $n(1-p) \geq 10$ SRS from population of interest	$n \geq 30$ or population is normal SRS from population of interest
Confidence intervals Est. ± (crit. Value)(St. Dev. Of est.)	$\hat{p} \pm z^* \sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$ **(1-PropZInt)** CHECK CONDITIONS – using $\hat{p}$ since you don't have a p	$\bar{x} \pm t^* \frac{s}{\sqrt{n}}$ **(TInterval)** *Can use Z if you know σ CHECK CONDITIONS
Significance Test	$H_o : p =$ $H_a : p >, <$ or $\neq$ The number in the hypotheses above is always a parameter – NEVER a statistic. CHECK CONDITIONS!!!! $z = \frac{\hat{p} - p}{\sqrt{\frac{p(1-p)}{n}}}$ p-value = Pr(z) = **(1-PropZTest)**	$H_o : \mu =$ $H_a : \mu >, <$ or $\neq$ The number in the hypotheses above is always a parameter – NEVER a statistic. CHECK CONDITIONS!!!! $t = \frac{\bar{x} - \mu}{\frac{s}{\sqrt{n}}}$ or $z = \frac{\bar{x} - \mu}{\frac{\sigma}{\sqrt{n}}}$ p-value = Pr(t) = **(TTest or ZTest if σ is known)**