8.6: Chapter 8 Formulas

Hypothesis Test for One Mean Use z-test when σ is given. Use t-test when s is given. If $n < 30$, population needs to be normal.	**Type I Error-** Reject H_0 when H_0 is true. **Type II Error-** Fail to reject H_0 when H_0 is false.
Z-Test: H_0: $\mu = \mu_0$ H_1: $\mu \neq \mu_0$ $Z = \frac{\bar{x}-\mu_0}{\left(\frac{\sigma}{\sqrt{n}}\right)}$ TI-84: Z-Test	**t-Test:** H_0: $\mu = \mu_0$ H_1: $\mu \neq \mu_0$ $t = \frac{\bar{x}-\mu_0}{\left(\frac{s}{\sqrt{n}}\right)}$ TI-84: T-Test
z-Critical Values Excel: Two-tail: $z_{\alpha/2}$ = NORM.INV(1–α/2,0,1) Right-tail: $z_{1-\alpha}$ = NORM.INV(1–α,0,1) Left-tail: z_{α} = NORM.INV(α,0,1) TI-84: Two-tail: $z_{\alpha/2}$ = invNorm(1–α/2,0,1) Right-tail: $z_{1-\alpha}$ = invNorm(1–α,0,1) Left-tail: z_{α} = invNorm(α,0,1)	t-Critical Values Excel: Two-tail: $t_{\alpha/2}$ =T.INV(1–α/2,df) Right-tail: $t_{1-\alpha}$ = T.INV(1–α,df) Left-tail: t_{α}= T.INV(α,df) TI-84: Two-tail: $t_{\alpha/2}$ = invT(1–α/2,df) Right-tail: $t_{1-\alpha}$ = invT(1–α,df) Left-tail: t_{α} = invT(α,df)
Hypothesis Test for One Proportion H_0: $p = p_0$ H_1: $p \neq p_0$ $Z = \frac{\hat{p}-p_0}{\sqrt{\left(\frac{p_0 q_0}{n}\right)}}$ TI-84: 1-PropZTest	**Rejection Rules:** • P-value method: reject H_0 when the p-value ≤ α. • Critical value method: reject H_0 when the test statistic is in the critical region (shaded tails).

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