Chapter 8 Review

#2. The "Late Show" managers claim that the mean income of viewers with TiVo recorders is greater than \$75000. Test this at 5% significance. Sample data includes 1700 random homes with TiVos with a mean income of \$76182 & we assume the population std. dev. is \$19990.

→ Parameter: Population mean, μ

→ Hypotheses: $H_0: \mu = 75000$, $H_1: \mu > 75000$ Right Tail Test.

→ Data: $\bar{x} = 76182$, $\sigma = 19990$, $n = 1700$, $\alpha = 0.05$

→ Requirements: $n = 1700 > 30$ ✓

→ Test Statistic: TS: $z = \dfrac{\bar{x} - \mu}{\sigma/\sqrt{n}} = \dfrac{76182 - 75000}{19990/\sqrt{1700}} = 2.44$ std. errors

significant

→ Critical Value:

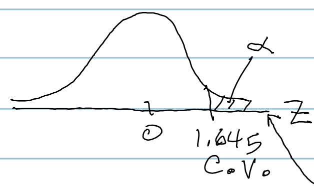
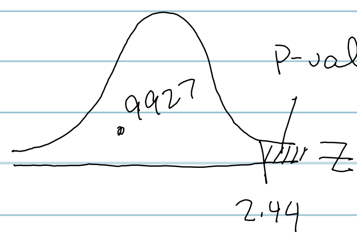


Table A2

df → Bottom Row (z)

$\alpha = 0.05$ one tail → 1.645

→ P-value:



p-val = 1 − .9927 = .0073

Table A1

z → .04

2.4 → .9927

→ Conclusion: p-val = .0073 < .05 = α

→ Reject H_0 & Support H_1.

The data support the claim that more than \$75000 is earned on average for owners of TiVos.