

Chapter 8 Review

#3 A sociologist claims that the mean score on a transportation survey is less than 70. A random sample of respondents gave a mean of 66.2 & std. dev. of 23.4. The sample size was 24. Test the claim @ 5% Significance. (There is evidence that the population is normal.)

→ Parameter: Population mean, μ .

→ Hypotheses: $H_0: \mu = 70$, $H_1: \mu < 70$

→ Gather: $\bar{x} = 66.2$, $s = 23.4$, $n = 24$, $\alpha = .05$

→ Requirements: Pop. is normal ✓

→ Test Statistic: $t = \frac{\bar{X} - \mu}{s/\sqrt{n}} = \frac{66.2 - 70}{23.4/\sqrt{24}} \approx -0.80$
std. errors

→ Critical Value

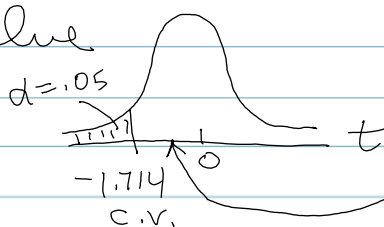


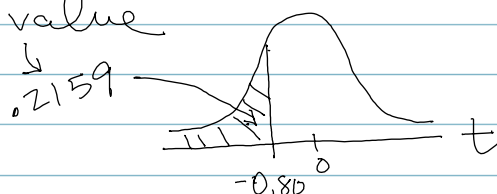
Table A2

df
↓
n-1
= 23 → 1.714

$\alpha = .05$
one tail

not significant

→ P-value



t-dist. P-value (Table A3)

df → 24

T.S.

↓

-0.80

↓

→ 0.2159

→ Conclusion: $p\text{-val} = .2159 > \alpha = .05$ fail to reject H_0 .

The data do not support the claim that the mean score is less than 70.