

Part VI: Calculations: One-sample problems (14 points)

Do Southerners attend more church meetings per year? A random sample of 45 Southerners has been selected from a larger population. The nation attends an average of 22.3 church meetings a year. The average for the Southern sample was 27.6 church meetings per year with a standard deviation of 3.1. Do Southerners really attend more church meetings? Make sure that you interpret the results in terms of the original research question.

- a) State the null hypothesis using the symbol H_0 (2 points)
- b) State the alternative hypothesis in words (2 points)
- c) What is z/t (critical)? (2 points)
- d) What is z/t (obtained)? Show your work!!!!!!!!!! (4 points)
- e) Write a paragraph interpreting the results (4 points)

Part VII: Calculations: ANOVA (20 points)

Three different sections of the same Interstate highway, with roughly equal traffic volumes, have been patrolled by the State Police at different levels of intensity for the past six months. The posted speed limit is 55 and the speeds of a random sample of motorists have been registered for each of the three sections. Is there any statistically significant difference between the three levels of patrol? Use the five step model as a guide and write a sentence or two of interpretation for your results.

Lightly Patrolled	Moderately Patrolled	Heavily Patrolled
55	57	50
70	58	54
59	58	56
65	55	58
72	57	55
69	59	52
54	58	55
65	54	54

- State the null hypothesis using the symbol H_0 (2 points)
- State the alternative hypothesis using words (2 points)
- What is the grand mean for this sample? (2 points)
- What is the dfw? How was this calculated? (2 points)
- What is the F(critical) (2 points)
- What is the mean sum of squares between? How was this calculated? (3 points)
- What is the F (obtained)? (3 points)
- Write a few sentences interpreting your results? (4 points)

Form C

PART V: Calculations I (6 points)

Tennessee residents were asked whether or not they own a gun. The proportion stating they own a gun was .439.

- a) Construct a 95% confidence interval for the population (3 points).

- b) Write one to two sentences interpreting the 95% confidence interval (3 points).