

Elementary Statistics

Name: _____

Optional Study Guide 3

Class: _____

Due Date: _____

Score: _____

Your solutions must be consistent with class notes & resources.

Be Neat, Organized, and No Work \Leftrightarrow No Points

-
1. (2 points) Find the corresponding p - value for a Right-Tail-Test with C.T.S. $\chi^2 = 10.321$ and $df = 14$. Drawing required with full TI command.

1. _____

2. (2 points) Find the corresponding p - value for a Left-Tail-Test with C.T.S. $\chi^2 = 0.345$ and $df = 11$. Drawing required with full TI command.

2. _____

3. (3 points) Find the area on each side of the C.T.S. $\chi^2 = 12.345$ with $df = 8$, then multiply the smaller area by 2. Drawing required with full TI command.

3. _____

4. (2 points) Whenever testing a claim about population standard deviation, how do you find the C.T.S.?

4. _____

5. (2 points) Whenever testing a claim about population standard deviation, how do you find the P-Value after computing the C.T.S. given it is a Two-Tail Test? Be very specific about your answer. Drawing required with full TI command.

5. _____

6. (3 points) Find the corresponding p - value for a Two-Tail-Test with C.T.S. $\chi^2 = 6.789$ and $df = 9$. Drawing required with full TI command.

6. _____

7. (5 points) Given: $\bar{x} = 78, n = 12, s = 10, H_0 : \sigma \leq 8, \alpha = 0.08$, claim: H_0
Find the computed test statistic, round to three decimal places, and the corresponding P-value. Clearly draw the distribution, and clearly mark and shade the critical region(s). Use non-statistical terminology to state your final conclusion about the claim.

7. _____

8. The department of education claims that standard deviation of all SAT scores is 50. Test the claim at $\alpha = 0.04$ if a sample of 18 randomly selected SAT exams had a mean of 940 and standard deviation of 60.

(a) (3 points) Clearly state H_0 and H_1 , identify the claim and type of test.

H_0 : _____

H_1 : _____

(b) (5 points) Find the computed test statistic, round to three decimal places, and the corresponding P-value. Clearly draw the distribution, and clearly mark and shade the critical region(s). Use non-statistical terminology to state your final conclusion about the claim.

(b) _____

9. The college claims that standard deviation of ages of all students is less than 10. Test the claim at $\alpha = 0.04$ if a sample of 15 randomly selected students had a mean of 32.5 and standard deviation of 8.5.

(a) (3 points) Clearly state H_0 and H_1 , identify the claim and type of test.

H_0 : _____

H_1 : _____

(b) (5 points) Find the computed test statistic, round to three decimal places, and the corresponding P-value. Clearly draw the distribution, and clearly mark and shade the critical region(s). Use non-statistical terminology to state your final conclusion about the claim.

(b) _____

10. The scores of 12 randomly selected geometry exams are given below:

98 78 90 70 80 55 78 70 70 80 68 60

(a) (3 points) Find the mean and standard deviation of this sample. Round to a whole number

(a) _____

(b) (3 points) Draw its box plot and clearly label.

It has also been reported that the standard deviation of all scores in a geometry exam is more than 10. Test the validity of the report at $\alpha = 0.01$ by using the data given above.

(c) (3 points) Clearly state H_0 and H_1 , identify the claim and type of test.

H_0 : _____

H_1 : _____

(d) (6 points) Find the computed test statistic, rounded to three decimal places, and its corresponding P-value. Clearly draw the distribution, and clearly mark and shade the critical region(s). Use your finding to state your final conclusion about the claim in non-statistical terminology.

(d) _____

You learn mathematics by doing mathematics.