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| **Elementary Statistics** | **Name:** _____ |
| **Study Guide 27** | **Class:** _____ |
| **Due Date:** _____ | **Score:** _____ |

**Your work must be very similar to my notes, lectures, or videos.**

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

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**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.** _____

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**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.** _____

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**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.** _____

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

**4.** _____

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**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.** _____

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**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.** _____

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**7. (5 points) Given: $\overline{x} = 78, n = 12, s = 10, H_0 : \sigma \leq 8, \alpha = 0.08$ , 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.** _____

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**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)** _____

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**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)** _____

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

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

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**(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.**

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**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 to state your final conclusion about the claim in non-statistical terminology.**

**(d)** _____