HELLO PLEASE HELP ME ARE MY ANSWERS CORRECT ☹ and the last question is really hard for me ☹

**Part I. STATEMENT ANALYSIS**

Determine whether each statement is TRUE or FALSE. Write your answer on the space provided. (10 points)

FALSE 1. The researcher can only make one claim on either the null hypothesis or the alternative hypothesis in the traditional method of hypothesis testing.

FALSE 2. If the sample value fall in the critical region, the alternative hypothesis is rejected.

TRUE 3. A confidence interval is a range of values used to estimate the true value of a sample statistic.

TRUE 4. If a sample mean is in the critical region with *α* = 0.05, it would still be in the critical region even if the alpha was changed to

*α* = 0.01.

TRUE 5. If a researcher obtains a test score of *z* = 2.5 for a hypothesis test using *α* = 0.01, then the researcher should reject the null hypothesis for a right-tailed test, however, the researcher should *not* reject the null hypothesis for a two-tailed test.

FALSE 6. The *z* test formula uses the sample standard deviation while the

*t* test formula uses the population standard deviation.

TRUE 7. The critical *t* value(s) depends on the degrees of freedom associated with the *t* test value.

TRUE 8. A type I error occurs when a researcher unknowingly obtains an extreme non-representative example.

FALSE 9. The null hypothesis should be rejected if the critical value is – 2.6,

*α* = 0.01, and the test is left-tailed.

TRUE 10. Rejecting the null hypothesis will direct the researcher to state the alternative hypothesis.

# Part II. PROBLEM SOLVING

Perform the indicated operation and simplify. Show your complete solutions and box your final answer.

1. A group of automotive engineers decided to conduct a study of its school buses and found that for 24 buses, the average stopping distance of buses traveling 50 miles per hour was 256 feet. The standard deviation of the population was 3.4 feet. Find the 99% confidence interval of the mean. (6 points)

* 1. Margin of error: 1.79
  2. Confidence interval: 1.61 < 𝜇 < 5.19

1. The lengths (in minutes) of a random selection of popular children’s animated films are listed below. Estimate the true mean length of all children’s animated films with 90% confidence. (8 points)

90 83 76 92 78 88 78 100 78 76 75

* 1. Sample mean: 83.09
  2. Sample standard deviation: 8.25
  3. Margin of error: 4.10
  4. Confidence interval: 78.99 < 𝜇 < 87.19

1. The percentage of physicians who are women is 28%. In a survey of physicians employed by a large university health system, 60 of 142 randomly selected physicians were women. Is there sufficient evidence at the 0.01 level of significance to conclude that the proportion of women physicians at the university health system exceeds 28%?

(12 points)

* 1. State the hypothesis and identify the claim of the researcher.

H0 = 0.28 and H1 = (claim)

* 1. Find the critical value(s).

Since and the test is a right-tailed test, the critical value is .

* 1. Compute the test value.

3.7828

* 1. Make a decision on the null hypothesis.

Since the test value, 3.7828, is greater than the critical value, 2.326, and is not in the critical region, the decision is to not reject the null hypothesis.

* 1. Make a decision on the claim of the researcher.

There is not enough evidence to support the claim that the proportion of women physicians at the university health system exceeds 28%.

1. Use an analogy to explain a Type I error and a Type II error and discuss its significance in hypothesis testing. You can also draw or use images to support your description.

(4 points)

Theme for SY 2020-2021: Called by Christ to witness, to serve, and to share.