

HYPOTHESIS TESTING: ONE SAMPLE t -TEST (15PTS)

Name:

1. Under what circumstances is a t -test statistic used instead of a z -test for a hypothesis test?

2. What are the degrees of freedom (df)?

3. Provide the appropriate names, symbols, and formulas for each of the following statistical steps, in t -tests.

Variance

Name:

Symbol

Error

Name:

Symbol

Obtained

Name:

Symbol

4. Students taking a statistics course at Bakersfield College reported studying more hours per test than did Bakersfield College students in general ($\bar{X} = 5$ hours per test), $t(8) = 3.00$, $p < .05$.
- How many participants were in this study?
 - What is the obtained value?
 - Calculate the 95% Confidence Interval.
6. Daniel wants to know whether a commonly prescribed drug does improve the attention span of students with attention deficit disorder (ADD). He knows that the mean attention span for students with ADD who are not taking the drug is 2.3 minutes long. His sample of 12 students taking the drug yielded a mean of 4.6. Justin can find no information regarding σ_x , so he calculated $s_x^2 = 1.96$.
- Identify the independent and dependent variables.
 - In a sentence, state the null hypothesis being tested.
 - Using symbols, state the null and alternative hypotheses.

- d. Determine the critical region using a one-tailed test with $\alpha = .05$.
- e. Conduct the statistical test to test your hypothesis (estimated population variance, estimated standard error of the mean, t -obtained).
- f. What will you do with the H_0 ?

7. On a standardized spatial skills task, normative data reveal that people typically get $\mu = 15$ correct solutions. A psychologist tests 7 individuals who have brain injuries in the right cerebral hemisphere. Use the following data, determine whether right-hemisphere damage results in significantly reduced performance on the spatial skills task. The scores are as follows:

12, 16, 9, 8, 10, 17, 10

Conduct a hypothesis test.

8. Select one of the following population means. Collect sample data from the other students, siblings, cousins, neighbors, etc. to compare to the population means. Your " n " must be at least 12. Complete 7 steps to test your hypothesis.

Hours per week spent studying: $\mu = 15.0$

Hours per week socializing: $\mu = 8.0$

Hours per week exercising: $\mu = 4.0$

Hours per day grooming: $\mu = 0.8$