

Name: _____

Homework Assignment #1 (out of 30 points)

1. Jamie believes that people who watch the news each night do better on a history test (out of 15 points) than people who do not. To test this theory, Jamie asks 7 people to watch the news for an hour each night before bed for one month, and then administers a history test to these participants (in 2012). The following year, Jamie asks these same 7 people to avoid watching the news for one month, and then administers the history test one more time (in 2013). The data follows. Is Jamie right? (12 points)

2012	2013
9	4
12	5
6	10
8	7
9	10
14	6
10	9

2. In question 1, what is Jamie's independent variable? (1 point)

3. In question 1, is Jamie's independent variable measured on a discrete or continuous scale? (1 point)

4. In question 1, on what scale of measurement is Jamie's dependent variable measured? (1 point)

5. Using the data from question 1, construct a frequency distribution graph to display the 7 history scores Jamie obtained from his sample in 2013. What proportion of people in this group scored under 50% on the test? (5 points)

6. If the distribution of history scores (for the history test mentioned in question 1) is approximately normal in the general population, what is the probability of randomly selecting a group of 7 people whose average score is at least 6, if $\mu = 7$ and $\sigma = 2$? (4 points)

7. Using the data from question 1, construct the two-tailed 99% confidence interval for the true population mean difference in test scores between 2012 and 2013. (3 points)

8. Explain, using one sentence, the meaning of what you calculated in question 7. (1 point)

9. Would you have made the same decision based on your results in question 7 as you did in question 1 (i.e., reject or fail to reject the null)? If so, just answer "yes." If not, explain why the decision can be different even though you are asking the same question. (2 points)