

Practice Problems Section 3A

For each of the following problems:

- a) Write the null and alternative hypothesis.
 - b) Label whether the null or the alternative is the claim.
 - c) Tell whether this is a left tail test, a right tail test, or a two tail test.
1. According to a CNN report, 93% of all Americans also own a traditional phone. We disagree with this report. We claim that the percentage has decreased as more and more Americans opt to only use a cell phone and throw away their traditional phones.
 2. According to a recent Newspaper article, the population mean average amount of time people in California spend eating and drinking per day is 1.25 hours. Test the claim that the population mean average number of hours spent eating and drinking really is 1.25 hours.
 3. According to an article in *USA Today*, 74% of Americans own a credit card. We disagree with the *USA Today* article and claim that more than 74% of Americans own a credit card.
 4. It has long been thought that the population mean average body temperature for all humans is 98.6 degrees Fahrenheit. A recent scientific study is now claiming that the population mean average body temperature is actually lower than 98.6 degrees Fahrenheit.
 5. The population standard deviation for the heights of adult men was thought to be 2.9 inches. We disagree with this. We claim that the population standard deviation for heights of men is not 2.9 inches.
 6. Test the claim that more than 10% of the world population is left-handed.
 7. The population percent of all women worldwide that hold CEO level jobs is lower than the population percent of all men worldwide that hold CEO level jobs. We long to eliminate this gender bias, so that the population percentages are the same.
 8. The population variance for cholesterol levels is about the same for adult men and adult women in the U.S.
 9. The majority of all Republicans support decreasing taxes.
 10. We claim that the population correlation coefficient is zero.
 11. While some think that the population slope is zero, we claim that the population slope is significantly positive.
 12. According to the center for disease control (CDC), 9.4% of people in the U.S. have some form of diabetes.
 13. According to an article in an automobile magazine, the population mean average price of a used mustang is 18 thousand dollars. We disagree with this article and claim that data indicates that the population mean is lower than 18 thousand dollars.
 14. According to the center for disease control (CDC), the population percentage of rabies cases from wild animals in 2015 is different from the percentage of rabies cases from wild animals in 2017.
 15. Some people believe that the population variance for human body temperature is about 0.5 degrees Fahrenheit squared. A recent scientific study is now claiming that the population variance for body temperature may actually be higher than 0.5.
 16. Test the claim that less than 90% of the world population is right-handed.
 17. We claim that the population mean average salary of female lawyers in New York is significantly lower than the population mean average salary of male lawyers in New York. We long to eliminate this gender bias, so that the population mean averages are the same.



18. The population variance for men's heights is not the same as for women's heights.
 19. We claim that the population correlation coefficient is greater than zero.
 20. While some think that the population slope is zero, we claim that the population slope is significantly negative.
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