

- (1) An attorney claims that 25% of lawyers advertise, but 63 out of a sample of 200 lawyers surveyed use advertising. Perform a hypotheses test to determine whether we can conclude that the proportion is actually larger than 25%. Use the largest possible appropriate confidence level and identify or estimate the p -value.

Distribution used (circle): z t χ^2 Test value: Confidence level: p -value:

Conclusion:

- (2) The industry standard for the standard deviation of nicotine content in cigarettes is 0.80 mg. A quality controller for a cigarette manufacturer tested 22 randomly selected cigarettes and found the standard deviation to be 0.68 mg. Is there reason to believe that the manufacturer is producing cigarettes with a smaller standard deviation? Use the largest possible appropriate confidence level and identify or estimate the p -value.

Distribution used (circle): z t χ^2 Test value: Confidence level: p -value:

Conclusion:

- (3) An agent claims that the average rent for a 1-br apartment in San Francisco is \$2389. It is known that the nationwide standard deviation of 1-br apartments in large cities is \$575. But when twenty SF area apartments were surveyed, and the mean rent was \$2003. Did the agent misspeak? Use the largest possible appropriate confidence level and identify or estimate the p -value.

Distribution used (circle): z t χ^2 Test value: Confidence level: p -value:

Conclusion:

- (4) A publication claims that the standard deviation of the salaries of the families of the entering freshman class is \$8540. A sample of 34 families had a standard deviation of \$8000. Use the largest possible appropriate confidence level and identify or estimate the p -value.

Distribution used (circle): z t χ^2 Test value: Confidence level: p -value:

Conclusion:

- (5) A university admissions official claims that the average tuition of public universities is \$5500. The standard deviation of college tuitions is known to be \$659, and a sample of 36 schools has mean tuition and fees of \$6300. Should the official's claim be denied in favor of the alternative claim that tuition is actually higher than \$5500? Use the largest possible appropriate confidence level and identify or estimate the p -value.

Distribution used (circle): z t χ^2 Test value: Confidence level: p -value:

Conclusion:

- (6) A specific brand of automobile tires should be pressurized to 35 psi. A tire company manager sampled 42 such tires of his customers and found that the mean pressure was 31.5 psi with standard deviation of 3 psi. Can the manager claim that the tires of his customers are underinflated? Use the largest possible appropriate confidence level and identify or estimate the p -value.

Distribution used (circle): z t χ^2 Test value: Confidence level: p -value:

Conclusion:

- (7) The actual amount of soda in 12 ounce cans is a normally distributed variable (so it will follow the 68 / 95.4 / 99.7 rule). The standard deviation of a sample of 12 cans was 0.14 oz. Can we say that the amount of soda in two-thirds of such cans is actually less than 0.2 ounces from the mean? Use the largest possible appropriate confidence level and identify or estimate the p -value.

Distribution used (circle): z t χ^2 Test value: Confidence level: p -value:

Conclusion: