

7.86. In checking the reliability of a bank's records, auditing firms sometimes ask a sample of the bank's customers to confirm the accuracy of their savings account balances as reported by the bank. Suppose an auditing firm is interested in estimating the proportion of a bank's savings accounts on whose balances the bank and the customer disagree. Of 200 savings account customers questioned by the auditors, fifteen said their balance disagreed with that reported by the bank.

- a. Estimate the actual proportion of the bank's savings accounts on whose balances the bank and customer disagree using a 95% confidence level.
- b. The bank claims that the true fraction of accounts on which there is disagreement is at most .05. You, as an auditor, doubt this claim. Test the bank's claim at the 10% significance level.

7.90. A large mail-order company has placed an order for 5,000 electric can openers with a supplier on condition that no more than 2% of the can openers will be defective. To check the shipment, the company tests a random sample of 400 of the can openers and finds eleven are defective. Does this provide sufficient evidence to indicate that the proportion of defective can openers in the shipment exceeds 2%? Test at the 5% significance level.

7.107. School officials from a high school claim that at least 85% of the students who have graduated from the school have received a college degree or are enrolled in a college degree program. A random sample of sixty former graduates indicates that forty-seven have received or are enrolled in a program to receive a college degree. Do the data contradict the school officials' claim?

7.108. A discount store claims that its steel-belted radial tires last as long as those of a major tire company. The following experiment was performed to test this claim. On each of forty cars, one discount tire and one rubber company tire were mounted on the rear axle. After each car was driven 8,000 miles, the tires were inspected for wear. Suppose the tires of the major company show less wear on thirty-two of the cars. What would you conclude about the discount store's claim? Why?

7.51. A recent report stated that only 20% of all college graduates find work in the field of their undergraduate major. A sample of 400 graduates from across the country found 100 working in the field of their undergraduate major. Does the sample provide evidence at the 5% level of significance to indicate the percentage given in the report was too low?

7.52. A method currently used by doctors to screen women for possible breast cancer fails to detect cancer in 15% of the women who actually have the disease. A new method has been developed which researchers hope will be able to detect cancer more accurately. A random sample of seventy women known to have breast cancer were screened using the new method. Of these, the new method failed to

detect cancer in six. Do the data provide sufficient evidence to indicate that the new screening method is better than the one currently in use?

7.55. A producer of frozen orange juice claims that 20% or more of all orange juice drinkers prefer its product. To test the validity of this claim, a competitor samples 200 orange juice drinkers and finds that only thirty-three prefer the producer's brand. Does the sample evidence refute the producer's claim?

Test at the 10% level of significance.

7.56. Last year a local television station determined that 70% of the people who watch news at 11:00 PM watch its station. The station's management believes that the current audience share may have changed. In an attempt to determine whether the audience share had in fact changed, the station questioned a random sample of eighty local viewers and found that sixty watched its news show. Does the sample evidence support the management's belief?