

MGT 2250 Management Statistics

Sample Test 2

1. Do you use the same password for all your social networking sites? A recent survey (*USA Today*, July 22, 2010, p. 1B) found that 32% of social network users use the same password for all their social networking sites.

a. To conduct a follow-up study that would provide 99% confidence that the point estimate is correct to within ± 0.03 of the population proportion, how many people need to be sampled?

b. To conduct a follow-up study that would provide 99% confidence that the point estimate is correct to within ± 0.05 of the population proportion, how many people need to be sampled?

c. Compare and explain the results of (a) and (b).

2. An auditor for a government agency was assigned the task of evaluating reimbursement for office visits to physicians paid by Medicare. The audit was conducted on a sample of 75 of the reimbursements, with the following results:

- In 12 of the office visits, there was an incorrect amount of reimbursement.

- The amount of reimbursement was $\bar{X} = 93.70$, $S = 34.55$.

a. At the 0.05 level of significance, is there evidence that the population mean reimbursement was less than \$100?

b. At the 0.05 level of significance, is there evidence that the proportion of incorrect reimbursements in the population was greater than 0.10?

c. Discuss the underlying assumptions of the test used in (a).

d. What is your answer to (a) if the sample mean equals \$90?

e. What is your answer to (b) if 15 office visits had incorrect reimbursements?

3. Brand valuations are critical to CEOs, financial and marketing executives, security analysts, institutional investors, and others who depend on well-researched, reliable information needed for assessments, and comparisons in decision making. Millward Brown Optimor has developed the BrandZ Top 100 Most Valuable Global Brands for WPP, the world's largest communications services group. Unlike other studies, the BrandZ Top 100 Most Valuable Global Brands fuses consumer measures of brand equity with financial measures to place a financial value on brands. The file **BrandZTechFin** contains the brand values for two sectors in the BrandZ Top 100 Most Valuable Global Brands for 2011: the technology sector and the financial institutions sector.

a. Assuming that the population variances are equal, is there evidence of a difference between the technology sector and the financial institutions sector with respect to mean brand value? (Use $\alpha = .05$.)

b. Repeat (a), assuming that the population variances are not equal.

c. Compare and explain the results of (a) and (b).

4. How does cellphone service compare between different cities? The data stored in **CellService** represent the rating of Verizon and AT&T in 22 different cities. (Data extracted from "Best Phones and Service," *Consumer Reports*, January 2012, p. 28, 37.)

a. At the 0.05 level of significance, is there evidence of a difference in the mean cellphone service rating between Verizon and AT&T?

b. What assumption is necessary about the population distribution in order to perform this test?

c. Use a graphical method to evaluate the validity of the assumption in (a).

d. Construct and interpret a 95% confidence interval estimate of the difference in the mean cellphone service rating between Verizon and AT&T.