

1.8

Hypothesis testing uses statistical techniques to validate a claim. With hypothesis testing, sample data is used to make an inference about the larger population from which the sample was drawn.

1.12.

- a. The agribusiness manufacturer is making a claim (higher than average crop yields) about the new fertilizer it produces. The statistical inference technique that is used in this case is hypothesis testing.
- b. One hypothesis test might be to examine the claim that the new fertilizer produces higher outputs per acre than existing fertilizers. Another hypothesis might be to test a claim that the new fertilizer increases yields by at least 20% when compared to existing fertilizers.

1.16.

This is primary data. There is probably no secondary source for this information. Most likely telephone surveys or personal interviews or both. This would be the most efficient and effective way to collect such information.

1.24.

Student answers will vary but one answer could be that since you are looking at only season ticket holders, a survey could be mailed to them that asks various questions about the concessions since addresses would be available on season ticket holders.

1.29

- a. Student answers will vary.
- b. It would be necessary to read the open-end response and code the response into one of several general categories and assign a number or letter to the response based on judgment of the person reading the response.

1.33.

The basic requirement for a sample to be considered a statistical sample is the items selected must be selected randomly. Some system of randomness must be in place to assure that the possible samples have an equal chance of being selected at the onset. Different statistical sampling techniques exist including simple random sampling, stratified random sampling, cluster random sampling, and systematic random sampling.

1.36.

Values computed from a sample are always considered statistics. In order for a value, such as an average, to be considered a parameter it must be computed from all items in the population.

1.45.

There may be cases where the sample size required to obtain a certain desired level of information from a simple random sample is greater than time or money will allow. In such cases, stratified random sampling has the potential to provide the desired information with a smaller sample size.

Student responses will vary but a possible example could involve a market research study looking at consumer expenditures for a product by family income. By dividing the population into the three income strata, low, medium, and high, the desired information can be obtained using a smaller sample size than would be the case with simple random sampling.

1.52.

- a. Qualitative. Nominal data.
- b. Quantitative. Ratio data.
- c. Quantitative. Ratio data.
- d. Qualitative. Ordinal data.
- e. Quantitative. Ratio data.
- f. Quantitative. Ratio data.

1.56.

- a. Since you are assigning a number to a group it is qualitative data so you cannot perform mathematical calculations on these categories.
- b. No. The values are just codes representing categories so ratio comparisons are not justified.
- c. Ordinal
- d. Cross-sectional

1.61.

If the data were collected and used by Anheuser-Busch they would be primary data.
If the data were then used by competitors they would be considered secondary data.

Distributor Name – nominal

Brands Carried – nominal

1.63.

- a. They would probably want to sample the cartons as they come off the assembly line at the Illinois plant for a specified time period. They would want to use a random sample. One method would be to take a systematic random sample. They could then calculate the percentage of the sample that had an unacceptable texture.
- b. The product is going to be ruined after testing it. You would not want to ruin the entire product that comes off the assembly line.