

## Exercises

- Determine whether the statement describes a descriptive or inferential statistic.

The average price of a car at the new car dealership in town is \$28,200.

- Determine whether the statement describes a descriptive or inferential statistic.

A survey of 885 people revealed that 51% have a college degree; therefore, it can be assumed that 51% of the U.S. population has a college degree.

## 1.4 The Value of Statistical Literacy

Part of being an intelligent human being is the desire to learn the truth about the world we live in. But as Oscar Wilde said:

“The truth is rarely pure and never simple.”

—Oscar Wilde, *The Importance of Being Earnest*

Being statistically illiterate puts one (or one’s organization) at a competitive disadvantage compared to companies that possess and use statistical knowledge and analytical tools. Statistics and its uses cannot be avoided. Therefore, learning and using statistical tools will give you and your organization more flexibility when making decisions.

To intelligently appreciate or produce statistical information, you must be statistically literate to defend yourself from a persuasive but fallacious statistical argument, to decrease your vulnerability to pseudo-sciences, and to diminish the chances of making poor and sometimes injurious business decisions.

A statistically literate person understands the language of statistics and understands statistical concepts and reasoning. To become statistically literate, one should be able to think “statistically”. This will involve asking questions like:

- Where did the data come from?
- How was the sample taken and is the sample large enough?
- How reliable or accurate were the measures used to generate the reported data?
- Are the reported statistics appropriate for this kind of data?
- Is a graph drawn appropriately?
- How was this probabilistic statement calculated?
- Do the claims make sense?
- Should there be additional information?
- Are there alternative interpretations?

## 1.4 Exercises

### Basic Concepts

- What are the consequences of being statistically illiterate? How could this put you at a disadvantage in business?
- What kinds of questions would a statistically literate person ask?

### Liar or Statistician?

In his book *How to Tell the Liars from the Statisticians*, Robert Hooke sheds light on our exposure to misleading statistics in everyday life. In the preface he writes, “The science of statistics has made great progress in this century, but progress has been accompanied by a corresponding increase in the misuse of statistics. The public, whether it gets its information from television, newspapers, or news magazines, is not well prepared to defend itself against those who would manipulate it with statistical arguments. Many people either believe everything they hear or come to believe in nothing statistical, which is even worse.” Throughout the remaining chapters, Hooke uses examples from politics, economics, entertainment, and the medical community to illustrate the dangers of being statistically illiterate. You might be surprised to learn the ways in which the misuse of statistics affects you every day. In order to digest the plethora of statistical information you encounter, you must first become statistically literate.

**Source:** Hooke, Robert. *How to Tell the Liars from the Statisticians*. New York, New York: Marcel Dekker Inc., 1983. Print.

**Exercises**

3. Do some research on the internet and locate an advertisement for a product or service that you suspect may be making a false claim.
  - a. What leads you to suspect the claim is false?
  - b. Does the ad include data or statistics in its claim? If so, do the data or statistics reported seem accurate?
  - c. Does the ad reveal the source of the data and how it was collected?
  - d. Are there any figures or graphs included in the ad? If so, is the graph appropriate and does it make sense?