***Applied Statistics in Business and Economics, 6e* (Doane)**

**Chapter 1 Overview of Statistics**

1) Statistics is the science of collecting, organizing, analyzing, interpreting, and presenting data.

2) Inferential statistics refers to generalizing from a sample to a population, estimating unknown parameters, drawing conclusions, and making decisions.

3) Descriptive statistics refers to summarizing data rather than generalizing about the population.

4) Estimating parameters and testing hypotheses are important aspects of descriptive statistics.

5) Inconsistent treatment of data by a researcher is a symptom of poor survey or research design.

6) *Empirical data* are collected through observations and/or experiments.

7) *Business intelligence* refers to collecting, storing, accessing, and analyzing data on the company's operations in order to make better business decisions.

8) When a statistician omits data contrary to her findings in a study, she is justified as long as the sample supports her objective.

9) A strong correlation between *A* and *B* would imply that *B* is caused by *A*.

10) The *post hoc* fallacy says that when *B* follows *A* then *B* is caused by *A*.

11) A statistical test may be significant yet have no practical importance.

12) Valid statistical inferences cannot be made when sample sizes are small.

13) Statistics is an essential part of critical thinking because it allows us to transform the empirical evidence from a sample so it will agree with our preferred conclusions.

14) Statistical challenges include imperfect data, practical constraints, and ethical dilemmas.

15) A business data analyst needs a Ph.D. in statistics.

16) The science of statistics tells us whether the sample evidence is convincing.

17) Pitfalls to consider in a statistical test include nonrandom samples, small sample size, and lack of causal links.

18) In business communication, a table of numbers is preferred to a graph because it is more able to convey meaning.

19) Statistical data analysis can often distinguish between real *versus* perceived ethical issues.

20) Excel has limited use in business because advanced statistical software is widely available.

21) Statistics helps surmount language barriers to solve problems in multinational businesses.

22) Statistics can help you handle either too little or too much information.

23) Predicting a presidential candidate's percentage of the statewide vote from a sample of 800 voters would be an example of *inferential* statistics.

24) Surveying electric vehicle owners would provide a representative random sample of Americans' views on global warming policies.

25) An example of *descriptive* statistics would be reporting the percentage of students in your accounting class that attended the review session for the last exam.

26) "Bob must be rich. He's a lawyer, and lawyers make lots of money." This statement *best* illustrates which fallacy?

A) Using poor survey methods

B) Confusing significance with importance

C) Unconscious bias

D) Generalizing from an average to an individual

27) Which is *not* an ethical obligation of a statistician?

A) To know and follow accepted procedures

B) To ensure data integrity and accurate calculations

C) To support client wishes in drawing conclusions from the data

D) To acknowledge sources of financial support

28) Which of the following statements is *correct*?

A) A parameter is a measure that is calculated from a sample.

B) Statistics is the science of collecting, organizing, analyzing, interpreting, and presenting data.

C) For day-to-day business data analysis, most firms rely on a large staff of expert statisticians.

D) A statistical test result that is significant also has practical importance.

29) Which is *least likely* to be an application where statistics will be useful?

A) Predicting whether an airfare is likely to rise or fall

B) Designing the most desirable features for a ski pass

C) Deciding whether offering Rice Krispies improves restaurant sales

D) Choosing the wording of a corporate policy prohibiting smoking

30) Because 25 percent of the students in my morning statistics class watch eight or more hours of television a week, I conclude that 25 percent of all students at the university watch eight or more hours of television a week. The most important logical weakness of this conclusion would be

A) relying on a sample instead of surveying every student.

B) using a sample that may not be representative of all students.

C) failing to correct for unconscious interviewer bias.

D) assuming cause and effect where none exists.

31) Which of the following is *not* a characteristic of an ideal statistician?

A) Technically current (e.g., software)

B) Communicates well (both written and oral)

C) Advocates client's objectives

D) Can deal with imperfect information

32) Which of the following statements is *not* true?

A) Statistics helps refine theories through ongoing hypothesis testing.

B) Statistics is the science of collecting, organizing, analyzing, interpreting, and presenting data.

C) Estimating parameters is an important aspect of descriptive statistics.

D) Statistical challenges include imperfect data and practical constraints.

33) Which is *not* a practical constraint facing the business researcher or data analyst?

A) Time and money are always limited.

B) The world is no laboratory, so some experiments are impractical.

C) Research on human subjects is fraught with danger and ethical issues.

D) Survey respondents usually will tell the truth if well compensated.

34) Which is *not* an essential characteristic of a good business data analyst?

A) Effective writer

B) Stays current on techniques

C) Has a Ph.D. or master's degree in statistics

D) Can deal with imperfect information

35) An ethical statistical consultant would *not* always

A) follow accepted statistical procedures.

B) support management's desired conclusions.

C) acknowledge sources of financial support.

D) report limitations of the data.

36) GM's experience with ignition switches suggests that

A) statistics is not applicable to automotive manufacturing.

B) limited data may still contain important clues.

C) good engineers can eliminate all risks.

D) ignition switches are inherently dangerous.

37) Which is *not* a goal of the ethical data analyst?

A) To be an honest broker of data.

B) To learn to downplay inconvenient data.

C) To understand the firm's code of ethics (or help create one).

D) To look for hidden agendas in data collection.

38) Which of the following statements is *not* true?

A) A statistic is a single measure (usually numerical) that is calculated from a sample.

B) Statistics is the science of collecting, organizing, analyzing, interpreting, and presenting data.

C) For day-to-day business data analysis, most firms rely on a large staff of expert statisticians.

D) A statistical test may be significant yet have no practical importance.

39) "Smoking is not harmful. My Aunt Harriet smoked, but lived to age 90." This *best* illustrates which fallacy?

A) Unconscious bias

B) Significance versus practical importance

C) *Post hoc* reasoning

D) Small sample generalization

40) Which *best* illustrates the distinction between statistical significance and practical importance?

A) "In 2016, 240 out of 400 statistics students at Oxnard Technical College sold their textbooks at the end of the semester, compared with 220 out of 330 students in 2015, a significant decrease."

B) "Our new manufacturing technique has increased the life of the 80 GB USB AsimoDrive external hard disk significantly, from 240,000 hours to 250,000 hours."

C) "In 50,000 births, the new vaccine reduced the incidence of infant mortality in Morrovia significantly from 14.2 deaths per 1000 births to 10.3 deaths per 1000 births."

D) "The new Sky Penetrator IV business jet's cruising range has increased significantly from 3,975 miles to 4,000 miles."

41) "Circulation fell in the month after the new editor took over the newspaper *Oxnard News Herald*. The new editor should be fired." Which is *not* a serious fallacy in this conclusion?

A) Generalizing from a small sample

B) Applying *post hoc* reasoning

C) Failing to identify causes

D) Using a biased sample

42) An ethical data analyst would be *least likely* to

A) check data for accuracy.

B) cite his/her data sources and their limitations.

C) acknowledge sources of financial support.

D) rely on consultants for all calculations.

43) "Tom's SUV rolled over. SUVs are dangerous." This *best* illustrates which fallacy?

A) Unconscious bias

B) Significance versus practical importance

C) *Post hoc* reasoning

D) Small sample generalization

44) "Bob didn't wear his lucky T-shirt to class, so he failed his chemistry exam." This *best* illustrates which fallacy?

A) Small sample generalization

B) Poor survey methods

C) *Post hoc* reasoning

D) More than one of the above

45) Which is *not* a reason for an average student to study statistics?

A) Improve technical writing skills

B) Gain information management skills

C) Enhance technical literacy

D) Learn stock market strategies

46) Which is *not* a likely area of application of statistics in business?

A) Auditing supplier invoices for correct payment

B) Questioning the executives' strategic decisions

C) Looking for patterns in a large marketing database

D) Making forecasts of several key product lines

47) Which is *not* a likely task of descriptive statistics?

A) Summarizing a sample

B) Describing data numerically

C) Estimating unknown parameters

D) Making visual displays of data

48) We would associate the term *inferential statistics* with which task?

A) Making visual displays of data

B) Estimating unknown parameters

C) Describing a sample of data

D) Tabulating a survey

49) A good data analyst

A) removes data if so instructed by client.

B) works alone to avoid team conflicts.

C) communicates with numbers rather than with graphs.

D) reports findings that may contradict client's ideas.

50) Which is *not* an analytical method commonly used to improve business decisions?

A) Descriptive analytics.

B) Predictive analytics.

C) Prescriptive analytics.

D) Reactive analytics.