Essential Statistics in Business and Economics 3rd Edition Doane Test Bank
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***Essential Statistics in Business and Economics, 3e* (Doane)**
Chapter 1 Overview of Statistics

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

Answer: TRUE
Explanation: This is one of many good definitions of statistics.
Difficulty: 1 Easy
Topic: 01.01 What Is Statistics?
Learning Objective: 01-01 Define statistics and explain some of its uses.
Bloom's: Remember
AACSB: Analytical Thinking
Accessibility: Keyboard Navigation

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

Answer: TRUE
Explanation: We can use statistics either to describe data or to infer something about a population.
Difficulty: 1 Easy
Topic: 01.03 Statistics in Business
Learning Objective: 01-01 Define statistics and explain some of its uses.
Bloom's: Remember
AACSB: Analytical Thinking
Accessibility: Keyboard Navigation

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

Answer: TRUE
Explanation: When we do not infer, we are only describing the available sample data.
Difficulty: 1 Easy
Topic: 01.03 Statistics in Business
Learning Objective: 01-01 Define statistics and explain some of its uses.
Bloom's: Remember
AACSB: Analytical Thinking
Accessibility: Keyboard Navigation

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

Answer: FALSE
Explanation: When we generalize to a population, we are using *inferential* statistics.
Difficulty: 2 Medium
Topic: 01.03 Statistics in Business
Learning Objective: 01-01 Define statistics and explain some of its uses.
Bloom's: Remember
AACSB: Analytical Thinking
Accessibility: Keyboard Navigation

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

Answer: FALSE
Explanation: Good survey data can still be misused or misinterpreted.
Difficulty: 2 Medium
Topic: 01.05 Critical Thinking
Learning Objective: 01-04 State the common challenges facing business professionals using statistics.
Bloom's: Understand
AACSB: Analytical Thinking
Accessibility: Keyboard Navigation

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

Answer: TRUE
Explanation: Empirical data are contrasted with *a priori* estimates (e.g., expecting 10 heads in 20 coin flips).
Difficulty: 2 Medium
Topic: 01.05 Critical Thinking
Learning Objective: 01-04 State the common challenges facing business professionals using statistics.
Bloom's: Remember
AACSB: Reflective Thinking
Accessibility: Keyboard Navigation

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

Answer: TRUE
Explanation: See Wikipedia for similar definitions of business intelligence.
Difficulty: 1 Easy
Topic: 01.03 Statistics in Business
Learning Objective: 01-01 Define statistics and explain some of its uses.
Bloom's: Remember
AACSB: Reflective Thinking
Accessibility: Keyboard Navigation

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

Answer: FALSE
Explanation: We do not omit data unless it is proven to be an error.
Difficulty: 2 Medium
Topic: 01.04 Statistical Challenges
Learning Objective: 01-04 State the common challenges facing business professionals using statistics.
Bloom's: Understand
AACSB: Ethics
Accessibility: Keyboard Navigation

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

Answer: FALSE
Explanation: Temporal sequence does not prove causation.
Difficulty: 1 Easy
Topic: 01.05 Critical Thinking
Learning Objective: 01-05 List and explain common statistical pitfalls.
Bloom's: Understand
AACSB: Reflective Thinking
Accessibility: Keyboard Navigation

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

Answer: TRUE
Explanation: Temporal sequence does not prove causation.
Difficulty: 1 Easy
Topic: 01.05 Critical Thinking
Learning Objective: 01-05 List and explain common statistical pitfalls.
Bloom's: Remember
AACSB: Reflective Thinking
Accessibility: Keyboard Navigation

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

Answer: TRUE
Explanation: Large samples sometimes reveal tiny effects that may not matter very much.
Difficulty: 1 Easy
Topic: 01.05 Critical Thinking
Learning Objective: 01-05 List and explain common statistical pitfalls.
Bloom's: Understand
AACSB: Analytical Thinking
Accessibility: Keyboard Navigation

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

Answer: FALSE
Explanation: Small samples may be all that we have, and statistics does have rules for them.
Difficulty: 2 Medium
Topic: 01.04 Statistical Challenges
Learning Objective: 01-04 State the common challenges facing business professionals using statistics.
Bloom's: Understand
AACSB: Analytical Thinking
Accessibility: Keyboard Navigation

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.

Answer: FALSE
Explanation: Ethical analysts challenge their beliefs with data rather than forcing data to fit their beliefs.
Difficulty: 1 Easy
Topic: 01.04 Statistical Challenges
Learning Objective: 01-04 State the common challenges facing business professionals using statistics.
Bloom's: Understand
AACSB: Ethics
Accessibility: Keyboard Navigation

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

Answer: TRUE
Explanation: The list is longer, but these three are big challenges.
Difficulty: 1 Easy
Topic: 01.04 Statistical Challenges
Learning Objective: 01-05 List and explain common statistical pitfalls.
Bloom's: Understand
AACSB: Ethics
Accessibility: Keyboard Navigation

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

Answer: FALSE
Explanation: Every business person does some statistics.
Difficulty: 1 Easy
Topic: 01.02 Why Study Statistics?
Learning Objective: 01-02 List reasons for a business student to study statistics.
Bloom's: Remember
AACSB: Analytical Thinking
Accessibility: Keyboard Navigation

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

Answer: TRUE
Explanation: There are clear scientific rules for statistical inference.
Difficulty: 1 Easy
Topic: 01.01 What Is Statistics?
Learning Objective: 01-01 Define statistics and explain some of its uses.
Bloom's: Understand
AACSB: Analytical Thinking
Accessibility: Keyboard Navigation

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

Answer: TRUE
Explanation: These are among many other pitfalls.
Difficulty: 1 Easy
Topic: 01.05 Critical Thinking
Learning Objective: 01-05 List and explain common statistical pitfalls.
Bloom's: Remember
AACSB: Reflective Thinking
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18) In business communication, a table of numbers is preferred to a graph because it is more able to convey meaning.

Answer: FALSE
Explanation: Although tables can show exact numbers, a good graph may be more helpful.
Difficulty: 1 Easy
Topic: 01.04 Statistical Challenges
Learning Objective: 01-03 Explain the uses of statistics in business.
Bloom's: Understand
AACSB: Communication
Accessibility: Keyboard Navigation

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

Answer: TRUE
Explanation: Proper framing of a question may reveal that there is no real ethical issue.
Difficulty: 1 Easy
Topic: 01.04 Statistical Challenges
Learning Objective: 01-04 State the common challenges facing business professionals using statistics.
Bloom's: Understand
AACSB: Ethics
Accessibility: Keyboard Navigation

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

Answer: FALSE
Explanation: Small businesses may lack advanced software (and the training to use it).
Difficulty: 1 Easy
Topic: 01.01 What Is Statistics?
Learning Objective: 01-01 Define statistics and explain some of its uses.
Bloom's: Understand
AACSB: Technology
Accessibility: Keyboard Navigation

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

Answer: TRUE
Explanation: Statistics is part of the international language of science.
Difficulty: 1 Easy
Topic: 01.02 Why Study Statistics?
Learning Objective: 01-02 List reasons for a business student to study statistics.
Bloom's: Remember
AACSB: Diversity
Accessibility: Keyboard Navigation

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

Answer: TRUE
Explanation: Statistical tasks include sampling to obtain more information or finding meaning in large piles of data.
Difficulty: 1 Easy
Topic: 01.02 Why Study Statistics?
Learning Objective: 01-02 List reasons for a business student to study statistics.
Bloom's: Remember
AACSB: Technology
Accessibility: Keyboard Navigation

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

Answer: TRUE
Explanation: Generalizing from a sample is an *inference*.
Difficulty: 2 Medium
Topic: 01.03 Statistics in Business
Learning Objective: 01-01 Define statistics and explain some of its uses.
Bloom's: Understand
AACSB: Analytical Thinking
Accessibility: Keyboard Navigation

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

Answer: FALSE
Explanation: They are not a random sample of all Americans.
Difficulty: 1 Easy
Topic: 01.05 Critical Thinking
Learning Objective: 01-04 State the common challenges facing business professionals using statistics.
Bloom's: Apply
AACSB: Reflective Thinking
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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.

Answer: TRUE
Explanation: As long as you do not generalize, it is a *descriptive* statistic.
Difficulty: 2 Medium
Topic: 01.03 Statistics in Business
Learning Objective: 01-01 Define statistics and explain some of its uses.
Bloom's: Apply
AACSB: Analytical Thinking
Accessibility: Keyboard Navigation

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

Answer: D
Explanation: Many lawyers do not work for big firms. (Remember *My Cousin Vinnie*?)
Difficulty: 2 Medium
Topic: 01.05 Critical Thinking
Learning Objective: 01-05 List and explain common statistical pitfalls.
Bloom's: Apply
AACSB: Reflective Thinking
Accessibility: Keyboard Navigation

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

Answer: C
Explanation: The analyst must sometimes present findings that the client does not like.
Difficulty: 1 Easy
Topic: 01.04 Statistical Challenges
Learning Objective: 01-04 State the common challenges facing business professionals using statistics.
Bloom's: Understand
AACSB: Ethics
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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.

Answer: B
Explanation: A parameter is a population characteristic. Firms often lack professional statisticians on staff, so all business graduates need some degree of statistical training to handle day-to-day problems. Sometimes an effect, while not due to chance, is too small to matter.
Difficulty: 2 Medium
Topic: 01.01 What Is Statistics?
Learning Objective: 01-01 Define statistics and explain some of its uses.
Bloom's: Remember
AACSB: Analytical Thinking
Accessibility: Keyboard Navigation

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

Answer: D
Explanation: Policy wording is probably left up to writers, not statisticians.
Difficulty: 2 Medium
Topic: 01.03 Statistics in Business
Learning Objective: 01-02 List reasons for a business student to study statistics.
Bloom's: Apply
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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.

Answer: B
Explanation: Generalizing from a nonrandom sample is risky. The morning class may not be representative of all students.
Difficulty: 3 Hard
Topic: 01.05 Critical Thinking
Learning Objective: 01-04 State the common challenges facing business professionals using statistics.
Bloom's: Apply
AACSB: Reflective Thinking
Accessibility: Keyboard Navigation

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

Answer: C
Explanation: There is an unattractive name for a consultant who always agrees with the client.
Difficulty: 1 Easy
Topic: 01.04 Statistical Challenges
Learning Objective: 01-03 Explain the uses of statistics in business.
Bloom's: Remember
AACSB: Ethics
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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.

Answer: C
Explanation: Estimating a population parameter is an *inference* rather than a *description*.
Difficulty: 2 Medium
Topic: 01.03 Statistics in Business
Learning Objective: 01-01 Define statistics and explain some of its uses.
Bloom's: Remember
AACSB: Analytical Thinking
Accessibility: Keyboard Navigation

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.

Answer: D
Explanation: Paid respondents may try to tell you what you want to hear.
Difficulty: 2 Medium
Topic: 01.04 Statistical Challenges
Learning Objective: 01-04 State the common challenges facing business professionals using statistics.
Bloom's: Understand
AACSB: Ethics
Accessibility: Keyboard Navigation

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

Answer: C
Explanation: No advanced degree is required for ordinary data analysis, which is why all business students study it.
Difficulty: 1 Easy
Topic: 01.04 Statistical Challenges
Learning Objective: 01-03 Explain the uses of statistics in business.
Bloom's: Remember
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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.

Answer: B
Explanation: There is a nasty name for a consultant who always agrees with management.
Difficulty: 1 Easy
Topic: 01.04 Statistical Challenges
Learning Objective: 01-04 State the common challenges facing business professionals using statistics.
Bloom's: Understand
AACSB: Ethics
Accessibility: Keyboard Navigation

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.

Answer: B
Explanation: When small samples are all that we have, we must study them carefully, especially when the consequences are extreme (e.g., car crashes).
Difficulty: 1 Easy
Topic: 01.03 Statistics in Business
Learning Objective: 01-01 Define statistics and explain some of its uses.
Bloom's: Apply
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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.

Answer: B
Explanation: We do not ignore data unless it is an actual error.
Difficulty: 2 Medium
Topic: 01.04 Statistical Challenges
Learning Objective: 01-04 State the common challenges facing business professionals using statistics.
Bloom's: Remember
AACSB: Ethics
Accessibility: Keyboard Navigation

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.

Answer: C
Explanation: Few firms have staffs of statistics experts, so all of us need to know the basics.
Difficulty: 2 Medium
Topic: 01.03 Statistics in Business
Learning Objective: 01-01 Define statistics and explain some of its uses.
Bloom's: Understand
AACSB: Analytical Thinking
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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

Answer: D
Explanation: Individual cases sometimes deviate from the average.
Difficulty: 2 Medium
Topic: 01.05 Critical Thinking
Learning Objective: 01-05 List and explain common statistical pitfalls.
Bloom's: Apply
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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 1,000 births to 10.3 deaths per 1,000 births."
D) "The new Sky Penetrator IV business jet's cruising range has increased significantly from 3,975 miles to 4,000 miles."

Answer: B
Explanation: Consumers would not notice because 240,000 hours is approximately 27 years.
Difficulty: 3 Hard
Topic: 01.05 Critical Thinking
Learning Objective: 01-05 List and explain common statistical pitfalls.
Bloom's: Evaluate
AACSB: Reflective Thinking
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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

Answer: D
Explanation: There is no apparent bias here, just a shaky inference from a small sample with no apparent causal link.
Difficulty: 2 Medium
Topic: 01.05 Critical Thinking
Learning Objective: 01-05 List and explain common statistical pitfalls.
Bloom's: Evaluate
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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.

Answer: D
Explanation: When you farm out your calculations, you have lost control of your work.
Difficulty: 1 Easy
Topic: 01.04 Statistical Challenges
Learning Objective: 01-04 State the common challenges facing business professionals using statistics.
Bloom's: Understand
AACSB: Ethics
Accessibility: Keyboard Navigation

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

Answer: D
Explanation: One instance proves little.
Difficulty: 2 Medium
Topic: 01.05 Critical Thinking
Learning Objective: 01-05 List and explain common statistical pitfalls.
Bloom's: Apply
AACSB: Reflective Thinking
Accessibility: Keyboard Navigation

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

Answer: C
Explanation: There is no credible causal link between these two events.
Difficulty: 2 Medium
Topic: 01.05 Critical Thinking
Learning Objective: 01-05 List and explain common statistical pitfalls.
Bloom's: Apply
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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

Answer: D
Explanation: Statistics helps improve writing and technical literacy, but to learn about the stock market, you should probably study finance.
Difficulty: 1 Easy
Topic: 01.02 Why Study Statistics?
Learning Objective: 01-02 List reasons for a business student to study statistics.
Bloom's: Remember
AACSB: Analytical Thinking
Accessibility: Keyboard Navigation

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

Answer: B
Explanation: Business strategy may involve statistics, but not as much as the others listed here.
Difficulty: 1 Easy
Topic: 01.03 Statistics in Business
Learning Objective: 01-03 Explain the uses of statistics in business.
Bloom's: Understand
AACSB: Analytical Thinking
Accessibility: Keyboard Navigation

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

Answer: C
Explanation: Estimating a population parameter is an *inference*.
Difficulty: 2 Medium
Topic: 01.03 Statistics in Business
Learning Objective: 01-01 Define statistics and explain some of its uses.
Bloom's: Remember
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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

Answer: B
Explanation: Estimating a population parameter is an *inference*.
Difficulty: 1 Easy
Topic: 01.03 Statistics in Business
Learning Objective: 01-01 Define statistics and explain some of its uses.
Bloom's: Remember
AACSB: Analytical Thinking
Accessibility: Keyboard Navigation

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.

Answer: D
Explanation: Analysts study *all* the data, work on teams, and use charts to clarify *all* findings.
Difficulty: 1 Easy
Topic: 01.04 Statistical Challenges
Learning Objective: 01-04 State the common challenges facing business professionals using statistics.
Bloom's: Remember
AACSB: Analytical Thinking
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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.

Answer: D
Explanation: See Minicase 1.1 Using Analytics to Improve Business.
Difficulty: 1 Easy
Topic: 01.03 Statistics in Business
Learning Objective: 01-03 Explain the uses of statistics in business.
Bloom's: Remember
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51) How might statistics be useful in determining the correct width of doorways in a convalescent care facility so that 99 percent of the "typical" wheelchairs can pass through the doorway without coming closer than 6 inches on either side?

Answer: Large samples could be taken of wheelchair widths and the space needed on either side, and averages could be computed. Statistics can then be applied to find the 99th percentiles. One way is to measure the widths of major brands of wheelchairs currently being sold, being sure that people are sitting in them and using their hands to move the wheels to measure the necessary clearance. Then take a similar survey of older wheelchairs that still are used. Estimate the proportion of each type of wheelchair in use, to determine what width is required for 99 percent to meet the requirement. You might also find that some wheelchair users carry a cane in their laps, which may protrude. To learn how to estimate percentiles, you need a basic class in statistics.
Explanation: Large samples could be taken of wheelchair widths and the space needed on either side, and averages and the 99th percentile could be computed for widths of major brands of old and new wheelchairs, along with the proportion of each type of wheelchair in use.
Difficulty: 3 Hard
Topic: 01.03 Statistics in Business
Learning Objective: 01-01 Define statistics and explain some of its uses.
Bloom's: Create
AACSB: Reflective Thinking
Accessibility: Keyboard Navigation

52) Established risk factors such as cholesterol and obesity can predict who will get heart disease about 80 percent of the time. Adding a new test called CRP can raise this percentage to 81 percent—a statistically significant difference. But would this improvement be of practical importance to a physician? To a patient? Discuss.

Answer: A single physician might feel that such a small improvement in medical diagnostics might not help very much in predicting a particular patient's chances of getting heart disease. However, in tests involving millions of patients, even a slightly improved test might benefit many individuals. It is a question of perspective (micro versus macro). Also, as medical tests improve, the potential incremental gains become smaller.
Explanation: In tests involving millions of patients, even a slightly improved test might benefit many individuals, though to the individual patient or physician the benefit might not be apparent.
Difficulty: 3 Hard
Topic: 01.05 Critical Thinking
Learning Objective: 01-04 State the common challenges facing business professionals using statistics.
Bloom's: Evaluate
AACSB: Reflective Thinking
Accessibility: Keyboard Navigation

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53) Bob said, "Since statistics cannot tell for certain whether one thing caused another, there is no point in even reporting probabilities." Argue both for and against Bob's statement.

Answer: Bob is correct in saying that we usually cannot prove cause and effect using statistics alone. But probabilities and correlations between events can point researchers in a certain direction. And many people do accept that statistics is a guide to action, if there is some logical reason to suppose that cause and effect may exist, even if science hasn't yet proven the case fully. Think how many people purchase health food and vitamin supplements, or seek holistic treatments for various diseases.
Explanation: We usually cannot prove cause and effect using statistics alone, but correlations between events can point researchers in a certain direction. Statistics is a guide to action when there is a logical reason to suppose that cause and effect may exist, even if science hasn't yet proven the case fully.
Difficulty: 2 Medium
Topic: 01.05 Critical Thinking
Learning Objective: 01-04 State the common challenges facing business professionals using statistics.
Bloom's: Evaluate
AACSB: Reflective Thinking
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54) Bob said, "Why study math and statistics? I'm majoring in human resources because it's people that are important in business, not numbers." Argue both for and against Bob's statement.

Answer: Bob is correct in that organizations consist of people, and their interactions and decisions determine the company's financial well-being and future. However, he is missing something essential. All organizations rely on statistics and data to keep track of their operations and financial progress. Without statistics and math, no company can exist. And human resources professionals use data just as much as any other business specialty. In fact, many statistical techniques were developed by psychologists in order to help understand humans and their interactions.
Explanation: Bob is correct in that organizations consist of people whose decisions determine the company's financial well-being and future, but all organizations (including HR specialists) rely on statistics and data to keep track of their operations, assets (human and financial), and financial progress.
Difficulty: 2 Medium
Topic: 01.03 Statistics in Business
Learning Objective: 01-03 Explain the uses of statistics in business.
Bloom's: Evaluate
AACSB: Reflective Thinking
Accessibility: Keyboard Navigation

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