Step-By-Step Introduction to Statistics for Business 2nd edition Landers Test Bank

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Instructor Resource
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Test Bank

Introduction

Thank you for adopting my textbook! I have put together this document to provide you with some sample test questions for your course. Items are organized by chapter and by question type (Multiple Choice, True/False, Short Answer/Essay, Data). Correct answers are bolded for multiple choice and true/false questions. Sample responses to short answer/essays are provided but should not be considered the "only" valid answer.

I have also included a classification using Bloom's taxonomy with each Multiple Choice and Short Answer/Essay question. Questions marked "Remember" assess a student's ability to recall or define key concepts. Questions marked "Understand" assess a student's ability to place remembered concepts into their broader context. Questions marked "Apply" assess a student's ability to utilize understood material to solve novel problems or link concepts in deeper ways.

Beyond marked questions, True/False questions are generally Remember (for definitions) or Apply (for calculations), whereas Data questions are almost always Apply. It is recommended that you choose a mixture of questions across all three levels and preferably also across all item types to ensure a complete understanding of course material from your students.

Note that data questions in later chapters make extensive use of the dataset generator available for users of this text at http://rlanders.net/datasets.php. This software is an automated dataset generator and teaching support tool. Students can open this website, select the chapter they wish to test themselves on, and a dataset will be generated automatically for them to analyse. The tool also provides fully worked-out answers, including middle-steps of computation like sums and squared sums.

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Even if you do not wish to provide the generator to students, you can use it to generate datasets and answer keys. When this is feasible in the following test bank (primarily in data questions), it will be noted with the following symbol: 

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Chapter 1: The language of statistics

Multiple choice

1. A single value collected in the context of research is a _____, whereas multiple values collected in the context of research are _____ .

a. parameter, statistic

b. data, datum

c. statistic, parameter

d. datum, data

<Remember>

2. A collection of data with different values based upon their source is a _____.

a. statistic

b. variable

c. population

d. parameter

<Remember>

3. Which of the following would be considered quantitative data?

a. 1st, 3rd, 2nd, 4th

b. yes, no, no, yes

c. 5000, 7000, 9000, 3000

d. all of these

<Understand>

4. Which of the following would be considered quantitative data?

a. 1st, 3rd, 2nd, 4th

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b. yes, no, no, yes

c. 5000, 7000, 9000, 3000

d. all of these

<Understand>

5. Which of the following would be considered qualitative data?

a. 0.1, 2.5, 3.6, 0.8

b. blue, green, red, purple

c. 34, 8, 15, 12

d. all of these

<Understand>

6. Which of the following could be a variable?

a. height

b. annual salary

c. attitude

d. all of these

<Apply>

7. The four scales of measurement, from least specific to most specific, are _____.

a. ratio, interval, ordinal, nominal

b. ordinal, nominal, interval, ratio

c. nominal, ordinal, interval, ratio

d. ratio, interval, nominal, ordinal

<Remember>

8. Which of the following would most likely be considered nominal data?

a. age

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b. height

c. salary

d. gender

<Understand>

9. Nominal data would be considered dichotomous when _____.

a. labels have an order

b. the data are quantitative

c. the data have only two possible values

d. the data are ranked

<Remember>

10. Which of the following would be considered ordinal data (but not interval data)?

a. ranked product preferences

b. favourite colour

c. sales in euros

d. all of these

<Apply>

11. Interval data _____.

a. are quantitative

b. have meaningful distances between values

c. have all the properties of ordinal data

d. all of these

<Remember>

12. The difference between interval and ratio data is _____.

a. ratio data have a meaningful zero whereas interval data do not

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b. ratio data are qualitative whereas interval data are quantitative

c. ratio data are dichotomous whereas interval data are not

d. There is no difference between interval and ratio data.

<Understand>

13. If "10" in a variable is twice as many as "5" in that variable, what is that variable's scale of measurement?

a. interval

b. ratio

c. nominal

d. ordinal

<Apply>

14. A common type of numerically-scored survey item is a _____.

a. ratio scale

b. Likert-type scale

c. Pearson-type scale

d. discrete scale

<Remember>

15. Which of the following would be an example of continuous data?

a. degrees Celsius

b. number of applicants

c. favourite colour

d. gender

<Understand>

16. Data that cannot be divided beyond a certain point would be considered _____.

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a. discrete

b. continuous

c. quantitative

d. dichotomous

<Understand>

17. A _____ is a theoretical group that you want to draw conclusions about.

a. sample

b. subject

c. population

d. dataset

<Remember>

18. Why do we examine samples rather than populations?

a. because populations cannot generally be measured

b. because populations provide only qualitative data

c. because samples are more accurate

d. because samples include all subjects of interest

<Understand>

19. A construct is _____.

a. a characteristic or property of interest in a population

b. a measurement of how well characteristics of a sample represent characteristics of a population

c. a group gathered at random from a population

d. none of these

<Remember>

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20. A relationship between constructs can be considered a _____.

a. operational definition

b. theory

c. hypothesis

d. experiment

<Remember>

21. Which of the following could be considered an operational definition for customer satisfaction?

a. a survey item asking about satisfaction on a 5-point scale

b. number of customer complaints

c. number of returns

d. all of these

<Apply>

22. A hypothesis _____.

a. tests the relationship between operational definitions

b. tests the relationship between constructs

c. measures how well a sample reflects a population

d. defines characteristics of interest in a population

<Remember>

23. Which of the following would be considered an experiment?

a. measuring the relationship between gender and salary

b. measuring the relationship between annual sales and position

c. measuring the difference in attitudes between customers randomly chosen to receive a free sample

d. measuring the difference in attitudes between men and women

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<Understand>

24. If you randomly split a sample of eight people into four groups, how many conditions do you have?

a. 0

b. 4

c. 8

d. 32

<Understand>

25. The only approach that allows us to determine cause and effect is a _____.

a. quasi-experiment

b. experiment

c. correlational study

d. longitudinal study

<Remember>

26. If you randomly assign subjects to different groups, you are _____.

a. placing subjects into experimental conditions

b. selecting subjects from a population

c. creating associations for a correlational study

d. none of these

<Understand>

27. If you were running an experiment in which employees completed a training program or no training program at all, participants who completed the training program would be in the _____ condition.

a. correlational

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b. control

c. treatment

d. operational

<Understand>

28. If you were create study where customers were randomly assigned to receive a free sample or not receive a free sample, those that did not receive a free sample would be in the _____ condition.

a. correlational

b. control

c. treatment

d. operational

<Understand>

29. If you collected data on the age of your customers and how much they enjoyed shopping at your business, this would be an example of a(n) _____.

a. condition

b. experiment

c. quasi-experiment

d. correlational study

<Understand>

30. The difference between an experiment and a quasi-experiment is that _____.

a. you can make conclusions about causality in a quasi-experiment, but not an experiment

b. you use more than one condition in a quasi-experiment, but not in an experiment

c. you can assess more than one variable in an experiment, but not in a quasi-experiment

d. you use random assignment in an experiment, but not in a quasi-experiment

<Understand>

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True/False

1. A dataset is a collection of data linked together in a meaningful way.

a. True

b. False

2. A variable is a collection of data linked together in a meaningful way.

a. True

b. False

3. A case is a source of data about one or more variables.

a. True

b. False

4. Qualitative data refer to qualities, like letters or words.

a. True

b. False

5. There are four scales of measurement.

a. True

b. False

6. Favourite colour is an example of a dichotomous variable.

a. True

b. False

7. Ratio data has all of the qualities of ordinal data but not interval data.

a. True

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b. False

8. Degrees Celsius are an example of a ratio-level scale of measurement.

a. True

b. False

9. Data that can be divided infinitely while remaining meaningful are continuous data.

a. True

b. False

10. Ten subjects drawn at random from a larger population would be considered a sample.

a. True

b. False

11. A representative sample would be one that accurately reflects the characteristics of a population.

a. True

b. False

12. A statement specifying the relationship between constructs would be considered a hypothesis.

a. True

b. False

13. The following statement is an example of a theory: “There is a relationship between happiness and job success.”

a. True

b. False

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14. If you operationalize a construct, you are defining it in a "real world" way.

a. True

b. False

15. The following statement is an example of a hypothesis: "Employees who report being happier on a 5-point Likert-type scale will also report being more satisfied on a 5-point Likert-type scale."

a. True

b. False

16. You should not draw conclusions about causality from an experiment.

a. True

b. False

17. If you randomly assign participants to three conditions, you are conducting an experiment.

a. True

b. False

18. If you collect data from participants on more than one variable without making any changes, you are conducting a correlational study.

a. True

b. False

19. A quasi-experiment uses random assignment.

a. True

b. False

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20. Quasi-experiment should always be your first choice for study design.

a. True

b. False

Short Answer/Essay

1. Define and give an example of each of the four scales of measurement.

Nominal data have meaningful labels. Example: gender (male/female).

Ordinal data are nominal data with a meaningful order. Example: rank ordering of sales performance (1st, 2nd, 3rd)

Interval data are ordinal data with meaningful distances between numbers. Example: the result from a Likert-type survey (with ratings 1–5)

Ratio data are interval data with a meaningful zero. Example: sales performance in British pounds

<Remember> <Apply>

2. Some statisticians consider a Likert-type item to be an ordinal-level scale, whereas others consider it to be an interval-level scale. Why?

Interval scales require equal distances between values whereas ordinal scales only require meaningful order. People in favour of "interval" argue that the distances between numbers in a Likert-type survey item (for example, 1 through 5) are equidistant; that is, the distance between 1 and 2 is the same as the distance between 4 and 5. People in favour of "ordinal" argue that this isn't true; all we know is that "4" is more than "3", not how far apart they are. However, if these distances are treated as equal, we are able to conduct more powerful statistical tests on the data.

<Understand>

3. Why is it important that samples are representative from the population? Define both sample and population and provide an example of each.

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Populations are groups of interest that we wish to make conclusions about. Samples are groups chosen at random from the population. We want samples to be representative of the population so that we can make accurate conclusions about the population using the sample. An example of a population would be "all customers of our store" whereas an example of a sample would be "customers that chose to complete our survey."

<Understand> <Apply>

4. Explain the difference between an experiment, correlational study, and a quasi-experiment. Give an example of each that could be used to address the following research question: "Does training impact job satisfaction?"

Correlational studies examine pre-existing relationships. Quasi-experiments compare pre-existing groups. Experiments compare groups randomly assigned to different conditions. A correlational training study might examine the relationship between number of training sessions completed and job satisfaction as measured on a survey. A quasi-experiment might compare job satisfaction between those that chose to complete training and those that chose not to. An experiment might compare job satisfaction between those randomly assigned to complete training (treatment group) and those that were randomly assigned not to (control group).

<Remember> <Apply>

Data

For the following questions, consider the table below:

	Training	Test score
1	A	15
2	A	14
3	B	19
4	B	20

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5	C	10
6	C	11

1. The table above, as a whole, depicts a _____.

a. data

b. datum

c. dataset

d. variable

2. In the table above, "19" is a _____.

a. data

b. datum

c. dataset

d. variable

3. In the table above, what is "Training"?

a. data

b. datum

c. dataset

d. variable

4. What is the value of "Training" for Case 5?

a. 10

b. B

c. 20

d. C

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5. Which of the following describes the numbers under the "Training" heading?

a. qualitative

b. ordinal

c. interval

d. quantitative

6. If employees were randomly assigned to Training A, B or C, this table depicts _____.

a. a correlational study

b. a quasi-experiment

c. an experiment

d. none of these

7. If employees chose whether they wished to complete Training A, B or C, this table depicts _____.

a. a correlational study

b. a quasi-experiment

c. an experiment

d. none of these

8. How many cases are depicted in this table?

a. 2

b. 6

c. 12

d. 18

9. How many variables are depicted in this table?

a. 2

b. 6

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c. 12

d. 18

10. How many data are depicted in this table?

a. 2

b. 6

c. 12

d. 18

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