Essentials of Social Statistics for a Diverse Society 3rd edition Leon Guerrero Test Bank

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Chapter 2: The Organization and Graphic Presentation of Data

Test Bank

Multiple Choice

1. The sum of all proportions in a frequency distribution should be _____.
A. 0
B. 1
C. 100
D. *N*
Ans: B
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Comprehension
Answer Location: Proportions and Percentages
Difficulty Level: Easy

2. When constructing a rate, the denominator refers to the _____.
A. number of actual events or occurrences
B. number of possible events or occurrences
C. difference of number of actual events or occurrences from number of possible events or occurrences
D. sum of number of actual events or occurrences from number of possible events or occurrences
Ans: B
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Knowledge
Answer Location: Rates
Difficulty Level: Easy

3. In a sample of 250 respondents, females account for three fifths of all observations in the sample. What is the total number of males in the sample?
A. 100
B. 150
C. 2/5
D. 3/5
Ans: A
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Application
Answer Location: Proportions and Percentages
Difficulty Level: Medium

4. A table showing the frequency at or below each category for a variable of interest is referred to as a _____ distribution.

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A. frequency
B. difference
C. cumulative frequency
D. cumulative difference
Ans: C
Learning Objective: 2-1: Construct and analyze frequency, percentage, and cumulative distributions.
Cognitive Domain: Knowledge
Answer Location: Cumulative Distributions
Difficulty Level: Easy

5. Which of the following is not a proportion?
A. 0.0
B. 0.5
C. 1.0
D. 1.5
Ans: D
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Comprehension
Answer Location: Proportions and Percentages
Difficulty Level: Medium

6. What is the formula for a proportion?
A. $p = f/N$
B. $p = N/f$
C. $p = (f/N) \times 100$
D. $p = (f/100) \times N$
Ans: A
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Knowledge
Answer Location: Proportions and Percentages
Difficulty Level: Easy

7. About 13% of survey respondents in a sample reported that they do not attend religious services regularly. About what proportion of respondents did not attend religious services regularly?
A. 13
B. 0.13
C. 87
D. 0.87
Ans: B
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Comprehension
Answer Location: Proportions and Percentages
Difficulty Level: Easy

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8. A technique for the simultaneous organization of two variables into a table is known as _____.
A. frequency distribution
B. bivariate analysis
C. central tendency
D. cross-tabulation
Ans: D
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Knowledge
Answer Location: Bivariate Tables
Difficulty Level: Easy

9. The sum of all frequencies in a frequency distribution should be _____.
A. 0
B. 1
C. 100
D. *N*
Ans: D
Learning Objective: 2-1: Construct and analyze frequency, percentage, and cumulative distributions.
Cognitive Domain: Comprehension
Answer Location: The Construction of Frequency Distributions
Difficulty Level: Easy

10. In a cross-tabulation, the intersection of a row and column is referred to as _____.
A. a node
B. the intersection
C. a cell
D. the intercept
Ans: C
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Knowledge
Answer Location: Bivariate Tables
Difficulty Level: Easy

11. A bivariate table is a series of _____ joined together to make one table.
A. samples
B. interval-ratio variables
C. column totals
D. frequency distributions
Ans: D
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Comprehension
Answer Location: Bivariate Tables
Difficulty Level: Easy

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12. A proportion is a _____.
A. relative frequency obtained by dividing the total number of cases by the frequency in each category
B. relative frequency obtained by dividing the frequency in each category by the total number of cases
C. number representing the total number of cases in a population
D. distribution showing the frequency at or below each category of the variable
Ans: B
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Knowledge
Answer Location: Proportions and Percentages
Difficulty Level: Easy

13. A cumulative percentage distribution shows the _____.
A. percentage at or above each category of the variable
B. total number of cases in a population
C. percentage at or below each category of the variable
D. total frequency of all variables
Ans: C
Learning Objective: 2-1: Construct and analyze frequency, percentage, and cumulative distributions.
Cognitive Domain: Knowledge
Answer Location: Cumulative Distributions
Difficulty Level: Easy

14. When computing percentages for a bivariate table, it is best to calculate percentages _____ each category of the _____ variable.
A. within; independent
B. separate from; dependent
C. within; interval-ratio
D. independently of; spurious
Ans: A
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Comprehension
Answer Location: Calculating Percentages Within Each Category of the Independent Variable
Difficulty Level: Medium

15. Once the appropriate percentages for a bivariate table are calculated, one then examines the _____ of these quantities across the categories of the independent variable.
A. sum
B. difference
C. product
D. quotient
Ans: B

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Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Comprehension
Answer Location: Comparing the Percentages Across Different Categories of the Independent Variable
Difficulty Level: Easy

16. A table representing frequency information for a single variable is known as a _____.
A. percentage distribution
B. cumulative distribution
C. univariate table
D. bivariate table
Ans: C
Learning Objective: 2-1: Construct and analyze frequency, percentage, and cumulative distributions.
Cognitive Domain: Knowledge
Answer Location: Frequency Distributions
Difficulty Level: Easy

17. What is the formula for a percentage?
A. $p = f/N$
B. $p = N/f$
C. $p = (f/N) \times 100$
D. $p = (N/f) \times 100$
Ans: C
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Knowledge
Answer Location: Proportions and Percentages
Difficulty Level: Easy

18. In a bivariate table, the row and column totals are called _____.
A. data
B. marginals
C. cells
D. variables
Ans: B
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Knowledge
Answer Location: Bivariate Tables
Difficulty Level: Easy

19. A graph showing the differences in frequencies or percentages among the categories of a nominal or an ordinal variable where the “pieces” add up to 100% of the total frequencies is referred to as a _____.
A. bar graph
B. pie chart

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C. frequency polygon
D. histogram
Ans: B
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Knowledge
Answer Location: The Pie Chart
Difficulty Level: Easy

20. A graph showing the difference in frequencies or percentages among the categories of a nominal or an ordinal variable where the categories are displayed as rectangles of equal width with their height proportional to the frequency or percentage of the category is referred to as a _____.
A. bar graph
B. pie chart
C. frequency polygon
D. histogram
Ans: A
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Knowledge
Answer Location: The Bar Graph
Difficulty Level: Easy

21. A graph showing the differences in frequencies or percentages among the categories of an interval-ratio variable where the categories are displayed as contiguous bars with width proportional to the width of the category and height proportional to the frequency or percentage of that category is called a _____.
A. bar graph
B. pie chart
C. frequency polygon
D. histogram
Ans: D
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Knowledge
Answer Location: The Histogram
Difficulty Level: Easy

22. A graph showing the differences in the frequencies or percentages among the categories of an interval-ratio variable where points are used to represent the frequencies of each category and placed above the midpoint of the category and then joined by a straight line is referred to as a _____.
A. bar graph
B. pie chart
C. line graph

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D. histogram
Ans: C
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Knowledge
Answer Location: The Line Graph
Difficulty Level: Easy

23. Which of the following graphic devices is most appropriate for displaying interval-ratio level data?
A. a histogram
B. a frequency polygon
C. a bar graph
D. a pie chart
Ans: A
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Comprehension
Answer Location: The Histogram
Difficulty Level: Easy

24. Which graphic device is best suited for comparing how an interval-ratio variable is distributed across two or more groups or time periods?
A. a histogram
B. a pie chart
C. a line graph
D. a time-series chart
Ans: C
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Comprehension
Answer Location: The Line Graph
Difficulty Level: Easy

25. In a _____, the bars that represent the categories of a variable are spaced, so that one bar is not directly next to another, whereas in a _____, the bars actually touch one another.
A. bar graph; histogram
B. histogram; bar graph
C. frequency polygon; bar graph
D. bar graph; frequency polygon
Ans: A
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Knowledge
Answer Location: The Bar Graph | The Histogram

Difficulty Level: Easy

26. A survey of 3,055 respondents asked whether or not anyone had been widowed. Eighty persons responded "yes." What percentage of respondents have never been widowed?
A. 2.69
B. 80.00
C. 97.31
D. 2,975
Ans: C
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Application
Answer Location: Proportions and Percentages
Difficulty Level: Easy

27. A survey of 3,055 respondents asked whether or not anyone had been widowed. Eighty persons responded "yes." Which of the following graphic devices would best display this information?
A. time-series chart
B. frequency distribution
C. bar graph
D. histogram
Ans: C
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Analysis
Answer Location: The Bar Graph
Difficulty Level: Medium

28. Imagine one of your colleagues is constructing a histogram to graph the results of the survey question "Which state do you live in?" What is the concern with your colleague's approach?
A. It is unlikely that the slices of the pie sum to 100%.
B. The colleague has used an inappropriate graphic device.
C. The colleague has not ensured that the frequencies at each time point sum to *N*.
D. The bars representing the categories are likely not as contiguous as they should be.
Ans: B
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Comprehension
Answer Location: The Histogram
Difficulty Level: Medium

29. Imagine one of your colleagues is constructing a pie chart to graph the results of the survey question "Which state do you live in?" What should be your first response upon reviewing their work?

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A. to note whether the "slices" of the pie sum to 100%
B. to suggest that he or she has in fact used an inappropriate graphic device
C. to ensure that the frequencies at each time point sum to *N*
D. to check whether the bars representing the categories are contiguous as they should be
Ans: A
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Comprehension
Answer Location: The Pie Chart
Difficulty Level: Medium

30. Imagine one of your colleagues is constructing a histogram to graph the results of data collected on respondents' occupational prestige score, a score that can take on any nonzero value. What should be your first response on reviewing the work?
A. to note whether the "slices" of the pie sum to 100%
B. to suggest that he or she has in fact used an inappropriate graphic device
C. to ensure that the frequencies at each time point sum to *N*
D. to check whether the bars representing the categories are contiguous as they should be
Ans: D
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Comprehension
Answer Location: The Histogram
Difficulty Level: Medium

31. Imagine one of your colleagues is constructing a pie chart to graph the results of data collected on respondents' occupational prestige score, a score that can take on any nonzero value. What should be your first response upon reviewing the work?
A. to note whether the "slices" of the pie sum to 100%
B. to suggest that your colleague has used an inappropriate graphic device
C. to ensure that the frequencies at each time point sum to *N*
D. to check whether the bars representing the categories are contiguous as they should be
Ans: A
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Comprehension
Answer Location: The Pie Chart
Difficulty Level: Medium

32. Which of the following statements is true about time-series charts?
A. Time, usually measured in months or years, is placed on the vertical axis.
B. The height of the bars is proportional to the frequency or percentage of observations.
C. Frequencies or percentages are usually placed along the vertical axis.

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D. The changes in the variable must always increase over time.
Ans: C
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Knowledge
Answer Location: The Time-Series Chart
Difficulty Level: Medium

33. A histogram is used to show the differences in frequencies or percentages among the categories of _____.
A. nominal and ordinal variables
B. ordinal and interval-ratio variables
C. nominal and interval-ratio variables
D. only interval-ratio variables
Ans: B
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Knowledge
Answer Location: The Histogram
Difficulty Level: Easy

Multiple Response

1. SELECT ALL THAT APPLY. A bivariate table _____.
A. displays the distribution of one variable across the categories of another
B. identifies its content in terms of the two variables
C. includes the intersection of a row and a column, which is called a marginal
D. has two dimensions, one for the dependent and the other for the independent variable
Ans: A, B, D
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Comprehension
Answer Location: Bivariate Tables
Difficulty Level: Easy

2. SELECT ALL THAT APPLY. Which of the following statements on rate are true?
A. A rate based on the total population is called a crude rate.
B. A rate is usually expressed as a multiple of some power of 10.
C. The number of female births per 1,000 women in ages from 25 to 29 is a rate measure.
D. The number of violent crimes committed in urban U.S. cities between 2005 and 2007 is a rate measure.
Ans: A, B, C
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Comprehension

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Answer Location: Rates
Difficulty Level: Medium

3. SELECT ALL THAT APPLY. In a sample of 100 people, 57 completed only high school, 23 went on to complete only some college, 13 went on to complete a 2-year or 4-year college degree, and 7 went on to graduate school. What proportion of the sample does not have a 2-year or 4-year college degree?
A. 13% of the sample have a 2-year or 4-year degree
B. 0.23 proportion of the sample completed at least high school
C. 0.80 proportion of the sample does not have a 2-year or 4-year degree
D. 93% of the sample did not complete graduate school
Ans: A, C, D
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Application
Answer Location: Proportions and Percentages
Difficulty Level: Medium

4. SELECT ALL THAT APPLY. In a sample of 500 respondents, men account for 20% of all observations in the sample. Based on this observation, which of the following statements are true?
A. total number of men in the sample = 400
B. total number of women in the sample = 200
C. percentage of men in the sample = 80%
D. proportion of men in the sample = 0.4
Ans: A, B
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Application
Answer Location: Proportions and Percentages
Difficulty Level: Medium

5. SELECT ALL THAT APPLY. Which of the following are true about time-series charts?
A. Time is placed on the horizontal axis.
B. The height of the bars is proportional to the frequency or percentage of observations.
C. Frequencies or percentages are usually placed along the vertical axis.
D. The values across the various time points are joined by a line.
Ans: A, B, C, D
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Comprehension
Answer Location: The Time-Series Chart
Difficulty Level: Easy

True/False

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1. A relative frequency obtained by dividing the frequency in each category by the total number of cases and multiplying by 100 is a frequency.
Ans: F
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Knowledge
Answer Location: Proportions and Percentages
Difficulty Level: Easy

2. The values of *x* and *y* for the following bivariate table are *x* = 106 and *y* = 149.

Make Abortion Legal	Religious Affiliation			
	A	B	C	
Agree	224	*y*	68	398
Neutral	94	76	104	274
Disagree	*x*	364	287	
	467		459	1,472

Ans: F
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Application
Answer Location: Bivariate Tables
Difficulty Level: Medium

3. To calculate the percentage within each category of the independent variable arrayed in the columns, the frequencies within each cell and the row marginals are divided by the total of the column in which they are located, and the column totals should sum to 100%.
Ans: T
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Knowledge
Answer Location: Calculating Percentages Within Each Category of the Independent Variable
Difficulty Level: Medium

4. The column percentages of the first column of the given bivariate table are 48%, 20%, and 32%, respectively.

Make Abortion Legal	Religious Affiliation			
	A	B	C	
Agree	224	106	68	398
Neutral	94	76	104	274
Disagree	149	364	287	800
	467	546	459	1,472

Ans: F
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Application

Answer Location: Calculating Percentages Within Each Category of the Independent Variable
Difficulty Level: Medium

5. Cross-tabulation is a technique for analyzing the relationship between two variables that have been organized in a table.
Ans: T
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Knowledge
Answer Location: Bivariate Tables
Difficulty Level: Easy

6. A bivariate table can have any number of dimensions.
Ans: F
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Comprehension
Answer Location: Bivariate Tables
Difficulty Level: Easy

7. A bivariate table in which the column variable has three categories and the row variable has four categories would be designated as a 3 × 4 table.
Ans: F
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Comprehension
Answer Location: Bivariate Tables
Difficulty Level: Easy

Short Answer

1. Fill in the empty cells in the following table.

Education Level	*f*	*p*	%
Completed high school	187		
Completed college	119		
Completed graduate school	62		

Ans:

Education Level	*f*	*p*	%
Completed high school	187	.508	50.8
Completed college	119	.323	32.3
Completed graduate school	62	.168	16.8

Learning Objective: 2-2: Calculate proportions and percentages.

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Cognitive Domain: Application
Answer Location: Proportions and Percentages
Difficulty Level: Easy

2. Fill in the empty cells in the following table.

Income Level	*f*	*p*	%
<34,999			
35,000–99,999		.20	
>100,000	7	.10	

Ans:

Income Level	*f*	*p*	%
<34,999	49	.70	70
35,000–99,999	14	.20	20
>100,000	7	.10	10

Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Application
Answer Location: Proportions and Percentages
Difficulty Level: Medium

3. Fill in the empty cells in the following table.

Language Proficiency	*f*	*Cf*	*p*	%
1 Language	129			50.0
2 Languages		214		
3+ Languages				

Ans:

Language Proficiency	*f*	*Cf*	*p*	%
1 Language	129	129	.500	50.0
2 Languages	85	214	.329	32.9
3+ Languages	44	258	.171	17.1

Learning Objective: 2-1: Construct and analyze frequency, percentage, and cumulative distributions.
Cognitive Domain: Application
Answer Location: Proportions and Percentages | Cumulative Distributions
Difficulty Level: Medium

4. Fill in the empty cells in the following table.

Social Capital	*f*	*Cf*	*p*	%
Low		188		
Medium		254		
High		298		

Ans:

Social Capital	*f*	*Cf*	*p*	%
Low	188	188	.631	63.1
Medium	66	254	.221	22.1

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High	44	298	.148	14.8

Learning Objective: 2-1: Construct and analyze frequency, percentage, and cumulative distributions.
Cognitive Domain: Application
Answer Location: Proportions and Percentages | Cumulative Distributions
Difficulty Level: Medium

5. Fill in the empty cells in the following table.

Number of Marriages	*f*	*Cf*	*p*	%
0		165		
1	60			
2+		250		10.0

Ans:

Number of Marriages	*f*	*Cf*	*p*	%
0	165	165	.660	66.0
1	60	225	.240	24.0
2+	25	250	.100	10.0

Learning Objective: 2-1: Construct and analyze frequency, percentage, and cumulative distributions.
Cognitive Domain: Application
Answer Location: Proportions and Percentages | Cumulative Distributions
Difficulty Level: Medium

6. Consider the table below obtained from the U.S. Bureau of the Census, Statistical Abstract of the United States, 2003. If the total number of military reserve personnel is 129,047, how many Blacks and Latinos are in the military reserve?

Military Reserve Personnel by Race, 2002	
White	73.2%
Black	15.9%
Latino	7.9%
Asian	2.3%
Native American	0.7%

Ans: 30,713
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Application
Answer Location: Proportions and Percentages
Difficulty Level: Medium

7. Using the following information from the U.S. Census Bureau, calculate both the number and percentage of non-White military reserve personnel.

Military Reserve Personnel by Race, 2002	
White	73.2%
Black	15.9%

Latino	7.9%
Asian	2.3%
Native American	0.7%

The total number of military reserve personnel is 129,047.
Ans: 34,585; 26.8%
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Application
Answer Location: Proportions and Percentages
Difficulty Level: Medium

8. Using the following information from the U.S. Census Bureau, calculate both the number and percentage of non-Asian military reserve personnel.

Military Reserve Personnel by Race, 2002	
White	73.2%
Black	15.9%
Latino	7.9%
Asian	2.3%
Native American	0.7%

The total number of military reserve personnel is 129,047.
Ans: 126,079; 97.7%
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Application
Answer Location: Proportions and Percentages
Difficulty Level: Medium

9. Construct a cumulative frequency distribution using the following information. Begin with Whites and work through the table in the order of the racial categories listed.

Military Reserve Personnel by Race, 2002	
White	73.2%
Black	15.9%
Latino	7.9%
Asian	2.3%
Native American	0.7%

The total number of military reserve personnel is 129,047.
Ans:

Military Reserve Personnel by Race, 2002		
Race	*f*	*cf*
White	94,642	94,462
Black	20,519	114,981
Latino	10,195	125,176
Asian	2,968	128,144
Native American	903	129,047

Learning Objective: 2-1: Construct and analyze frequency, percentage, and cumulative distributions.
Cognitive Domain: Application
Answer Location: Cumulative Distributions
Difficulty Level: Medium

10. Using the following information from the U.S. Census Bureau, how many military reserve personnel are White, Black, and Latino?

Military Reserve Personnel by Race, 2002	
White	73.2%
Black	15.9%
Latino	7.9%
Asian	2.3%
Native American	0.7%

The total number of military reserve personnel is 129,047.
Ans: 125,716
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Application
Answer Location: Proportions and Percentages
Difficulty Level: Medium

11. Fill in the empty cells in the following table.

Homosexuals Should Have the Right to Marry, 2006		
	f	cum (%)
Strongly agree	307	15.5
Agree	391	
Neither agree nor disagree	260	48.3
Disagree		
Strongly disagree	695	

Ans:

Homosexuals Should Have the Right to Marry, 2006		
	f	cum (%)
Strongly agree	307	15.5
Agree	391	35.2
Neither agree nor disagree	260	48.3
Disagree	329	64.9
Strongly disagree	695	100.0

Learning Objective: 2-1: Construct and analyze frequency, percentage, and cumulative distributions.
Cognitive Domain: Application
Answer Location: Cumulative Distributions
Difficulty Level: Hard

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12. Consider the following hypothetical data on each respondent's region of U.S. residence and whether or not they voted in the last presidential election. Use these data to construct a bivariate table with cells containing the appropriate frequencies.

Person	Region	Voted
1	South	Yes
2	South	Yes
3	North	No
4	North	No
5	North	Yes
6	North	Yes
7	North	Yes
8	South	No
9	South	No
10	South	No
11	North	Yes
12	North	Yes
13	North	No
14	North	No
15	South	No

Ans:

	Region	
Voted	South	North
Yes	2	5
No	4	4

Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Application
Answer Location: Bivariate Tables
Difficulty Level: Easy

13. Identify the independent variable in the following table.

	Religious Affiliation	
Position on Abortion	Protestant	Catholic
Support	156	86
Oppose	296	139

Ans: religious affiliation
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Analysis
Answer Location: Bivariate Tables
Difficulty Level: Medium

14. Calculate the marginals for the table below.

	Religious Affiliation	
Position on Abortion	Protestant	Catholic
Support	156	86

Oppose	296	139

Ans:

Position on Abortion	Religious Affiliation		Row Total
	Protestant	Catholic	
Support	156	86	242
Oppose	296	139	435
Column Total	452	225	677

Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Application
Answer Location: Bivariate Tables
Difficulty Level: Easy

15. Calculate the appropriate percentages for each cell.

Position on Abortion	Religious Affiliation	
	Protestant	Catholic
Support	156	86
Oppose	296	139

Ans:

Position on Abortion	Religious Affiliation		Row Total
	Protestant	Catholic	
Support	34.5%	38.2%	35.7%
Oppose	65.5%	61.8%	64.3%
Column total	100%	100%	100%

Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Application
Answer Location: Calculating Percentages Within Each Category of the Independent Variable
Difficulty Level: Medium

16. According to this table, what proportion of respondents neither agree nor disagree?

Homosexuals Should Have the Right to Marry, 2006		
	f	cum %
Strongly agree	307	15.5
Agree	391	35.2
Neither agree nor disagree	260	48.3
Disagree	329	64.9
Strongly disagree	695	100.0

Ans: .131
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Application
Answer Location: Proportions and Percentages
Difficulty Level: Easy

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17. According to this table, what percentage of respondents strongly agree or strongly disagree?

Homosexuals Should Have the Right to Marry, 2006		
	f	cum %
Strongly agree	307	15.5
Agree	391	35.2
Neither agree nor disagree	260	48.3
Disagree	329	64.9
Strongly disagree	695	100.0

Ans: 50.6%
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Application
Answer Location: Proportions and Percentages
Difficulty Level: Easy

18. Refer to the table below and construct a cumulative frequency distribution. Start with those who strongly disagree and work your way down through the remaining categories.

Homosexuals Should Have the Right to Marry, 2006		
	f	cum %
Strongly agree	307	15.5
Agree	391	35.2
Neither agree nor disagree	260	48.3
Disagree	329	64.9
Strongly disagree	695	100.0

Ans:

Homosexuals Should Have the Right to Marry, 2006	
	Cf
Strongly agree	307
Agree	698
Neither agree nor disagree	958
Disagree	1,287
Strongly disagree	1,982

Learning Objective: 2-1: Construct and analyze frequency, percentage, and cumulative distributions.
Cognitive Domain: Application
Answer Location: Cumulative Distributions
Difficulty Level: Easy

19. According to the table below, how many people do not disagree in some capacity or another?

Homosexuals Should Have the Right to Marry, 2006

	f	cum %
Strongly agree	307	15.5
Agree	391	35.2
Neither agree nor disagree	260	48.3
Disagree	329	64.9
Strongly disagree	695	100.0

Ans: 958
Learning Objective: 2-1: Construct and analyze frequency, percentage, and cumulative distributions.
Cognitive Domain: Application
Answer Location: Cumulative Distributions
Difficulty Level: Easy

20. According to the table below, how many Protestants and Catholics who attend religious services more than once per year oppose abortion?

		Religious Affiliation			
		Protestant		Catholic	
		Attendance of Religious Services		Attendance of Religious Services	
		>1/year (%)	<1/year (%)	>1/year (%)	<1/year (%)
Position on abortion	Support	30.5	43.7	30.1	59.7
	Oppose	69.5	56.3	69.9	40.3
	Total	100.0 (308)	100.0 (142)	100.0 (143)	100.0 (72)

Ans: 214 Protestants and 100 Catholics
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Application
Answer Location: Calculating Percentages Within Each Category of the Independent Variable
Difficulty Level: Medium

21. Explain how cumulative frequency distributions are obtained. What do they allow us to do?
Ans: They are obtained by adding to the frequency in each category the frequencies of all the categories below it. They allow us to locate the relative position of a given score in a distribution.
Learning Objective: 2-1: Construct and analyze frequency, percentage, and cumulative distributions.
Cognitive Domain: Knowledge
Answer Location: Cumulative Distributions
Difficulty Level: Easy

22. Using the method of comparing percentage differences discussed in the chapter, what can you conclude about the following data?

	Religious Affiliation

		Protestant		Catholic	
		Attendance of Religious Services		Attendance of Religious Services	
		>1/year (%)	<1/year (%)	>1/year (%)	<1/year (%)
Position on Abortion	Support	30.5	43.7	30.1	59.7
	Oppose	69.5	56.3	69.9	40.3
	Total	100.0 (308)	100.0 (142)	100.0 (143)	100.0 (72)

Ans: Attendance of religious services acts as an intervening variable.
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Analysis
Answer Location: Comparing the Percentages Across Different Categories of the Independent Variable
Difficulty Level: Medium

23. Calculate the marginals for the table below.

	Highest Degree				
Ever Been Divorced	<High School	High School	Junior College	Bachelor's Degree	Graduate Degree
Yes	107	362	55	89	52
No	285	867	149	374	195

Ans:

	Highest Degree					
Ever Been Divorced	<High School	High School	Junior College	Bachelor's Degree	Graduate Degree	Row Total
Yes	107	362	55	89	52	665
No	285	867	149	374	195	1,870
Column total	392	1,229	204	463	247	2,535

Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Application
Answer Location: Bivariate Tables
Difficulty Level: Easy

24. Calculate the appropriate percentages for each cell in the table below.

	Highest Degree				
Ever Been Divorced	<High School	High School	Junior College	Bachelor's Degree	Graduate Degree
Yes	107	362	55	89	52
No	285	867	149	374	195

Ans:

	Highest Degree					
Ever Been Divorced	<High School	High School	Junior College	Bachelor's Degree	Graduate Degree	Row Total

	(%)	(%)	(%)	(%)	(%)	(%)
Yes	27.3	29.5	27.0	19.2	21.1	26.2
No	72.7	70.5	73.0	80.8	78.9	73.8
Column total	100	100	100	100	100	100

Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Application
Answer Location: Calculating Percentages Within Each Category of the Independent Variable
Difficulty Level: Medium

25. In summarizing the relationship between two variables arranged in a bivariate table, explain how one goes about comparing the percentages in a bivariate table if the independent variable has more than two categories.
Ans: One typically compares the highest and lowest values.
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Comprehension
Answer Location: Comparing the Percentages Across Different Categories of the Independent Variable
Difficulty Level: Medium

26. Calculate the appropriate percentages for each cell and provide a brief summary of the relationship between education and divorce using the method of comparing percentage differences discussed in the chapter.

	Highest Degree				
Ever Been Divorced	<High School	High School	Junior College	Bachelor's Degree	Graduate Degree
Yes	107	362	55	89	52
No	285	867	149	374	195

Ans: In the Yes row, 29.5% – 19.2% = 10.3%, suggesting a weak to moderate relationship.

	Highest Degree					
Ever Been Divorced	<High School (%)	High School (%)	Junior College (%)	Bachelor's Degree (%)	Graduate Degree (%)	Row Total (%)
Yes	27.3	29.5	27.0	19.2	21.1	26.2
No	72.7	70.5	73.0	80.8	78.9	73.8
Column total	100	100	100	100	100	100

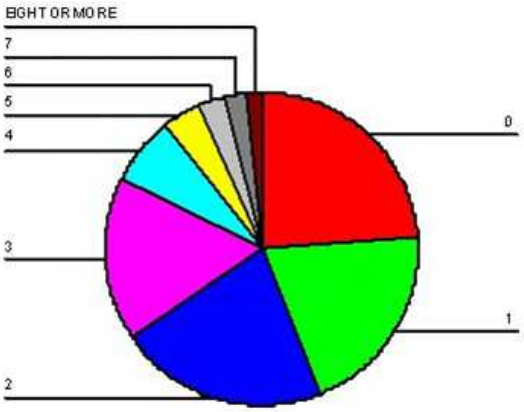
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Application
Answer Location: Calculating Percentages Within Each Category of the Independent Variable
Difficulty Level: Medium

27. Consider the information in the table below. Construct a pie chart for Blacks in the sample.

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Number of Children	Whites	Blacks
0	903	151
1	513	126
2	872	136
3	531	105
4	282	45
5	83	25
6	51	18
7	25	13
8+	16	11

Ans:



Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Application
Answer Location: The Pie Chart
Difficulty Level: Easy

28. Considering the information provided in the table below, do a higher percentage of Whites or Blacks have five or more children?

Number of Children	Whites	Blacks
0	903	151
1	513	126
2	872	136
3	531	105
4	282	45
5	83	25
6	51	18
7	25	13
8+	16	11

Ans: Blacks at 10.6%

Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Application
Answer Location: Proportions and Percentages
Difficulty Level: Medium

29. Would a bar chart or a histogram be more appropriate for displaying the data presented in the table below? Why?

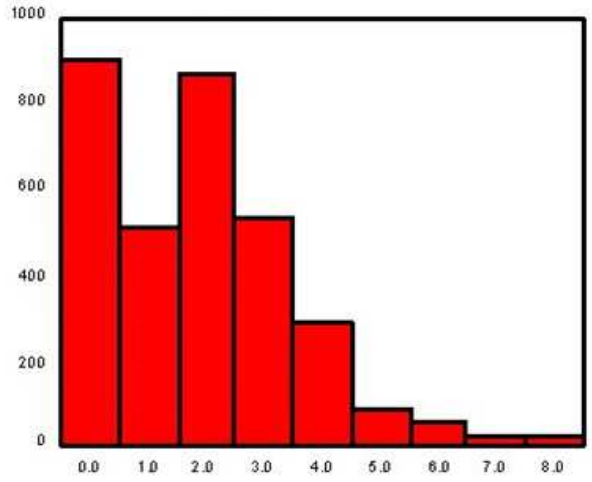
Number of Children	Whites	Blacks
0	903	151
1	513	126
2	872	136
3	531	105
4	282	45
5	83	25
6	51	18
7	25	13
8+	16	11

Ans: The number of children can be considered an interval-ratio level variable, therefore a histogram would be more appropriate.
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Analysis
Answer Location: The Histogram
Difficulty Level: Medium

30. Construct either a bar chart or a histogram, depending on which is more appropriate in this case, for displaying the data presented in the below table.

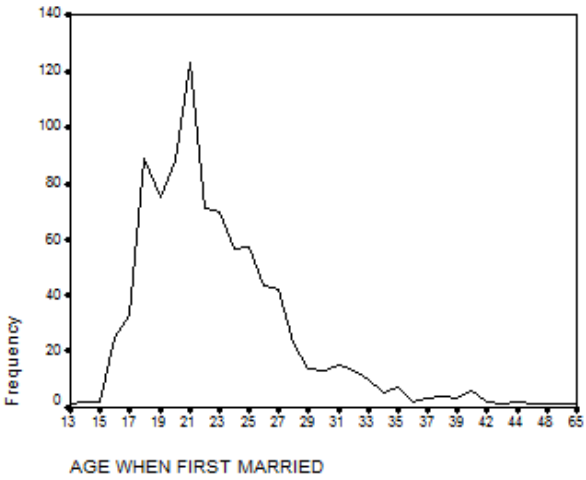
Number of Children	Whites	Blacks
0	903	151
1	513	126
2	872	136
3	531	105
4	282	45
5	83	25
6	51	18
7	25	13
8+	16	11

Ans:



Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Application
Answer Location: The Bar Graph
Difficulty Level: Medium

31. What other type of graph could be used to display the information in the chart below?



Ans: histogram
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Analysis
Answer Location: The Histogram
Difficulty Level: Medium

32. Given the bivariate table below, calculate the column percentages.

	Religious Affiliation			
Make Abortion Legal	A	B	C	

Agree	224	106	68	398
Neutral	94	76	104	274
Disagree	149	364	287	800
	467	546	459	1,472

Ans:

Make Abortion Legal	Religious Affiliation			
	A (%)	B (%)	C (%)	(%)
Agree	48	19	15	27
Neutral	20	14	23	19
Disagree	32	67	62	54
	100	100	100	100

Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Application
Answer Location: Calculating Percentages Within Each Category of the Independent Variable
Difficulty Level: Medium

33. Given the bivariate table below, calculate the row percentages.

Make Abortion Legal	Religious Affiliation			
	A	B	C	
Agree	224	106	68	398
Neutral	94	76	104	274
Disagree	149	364	287	800
	467	546	459	1,472

Ans:

Make Abortion Legal	Religious Affiliation			
	A (%)	B (%)	C (%)	(%)
Agree	56	27	17	100
Neutral	34	28	38	100
Disagree	19	45	36	100
	32	37	31	100

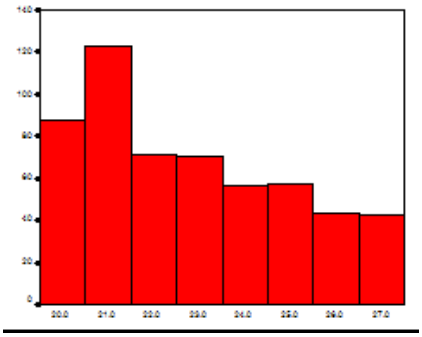
Learning Objective: 2-4: Create a bivariate table.
Cognitive Domain: Application
Answer Location: Calculating Percentages Within Each Category of the Independent Variable
Difficulty Level: Medium

34. Presented below is a chart and a portion of the data for 550 respondents that were used to construct it. What is another type of graph that you can use to display this information? Construct this graph using the data below with the frequencies placed along the vertical axis.



Age at First Marriage	Percentage
20	16.0
21	22.4
22	12.9
23	12.7
24	10.2
25	10.4
26	7.8
27	7.6

Ans: bar graph



Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Analysis
Answer Location: The Bar Graph
Difficulty Level: Medium

35. Considering the information in the below table, what would happen to the percentage of respondents aged 20 if we simply dropped all respondents who were first married at age 21 from the sample?

Age at First Marriage	Percentage

20	16.0
21	22.4
22	12.9
23	12.7
24	10.2
25	10.4
26	7.8
27	7.6

Ans: the percentage would increase
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Comprehension
Answer Location: Proportions and Percentages
Difficulty Level: Easy

36. Considering the information in the below table, what proportion of respondents were first married at the ages of 24 and 25?

Age at First Marriage	Percentage
20	16.0
21	22.4
22	12.9
23	12.7
24	10.2
25	10.4
26	7.8
27	7.6

Ans: .21
Learning Objective: 2-2: Calculate proportions and percentages.
Cognitive Domain: Application
Answer Location: Proportions and Percentages
Difficulty Level: Hard

37. Which graphic device would be most appropriate to display information about the following statement? “Undocumented migration from Mexico to the United States has increased each decade from the end of the Bracero Accord in 1964 through 2005.”
Ans: a time-series chart
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Analysis
Answer Location: The Time-Series Chart
Difficulty Level: Medium

38. Which graphic device would be most appropriate to display information about “The sex ratio at birth—that is, the ratio of the number of males to the number of females—is 1.05 in the United States”?

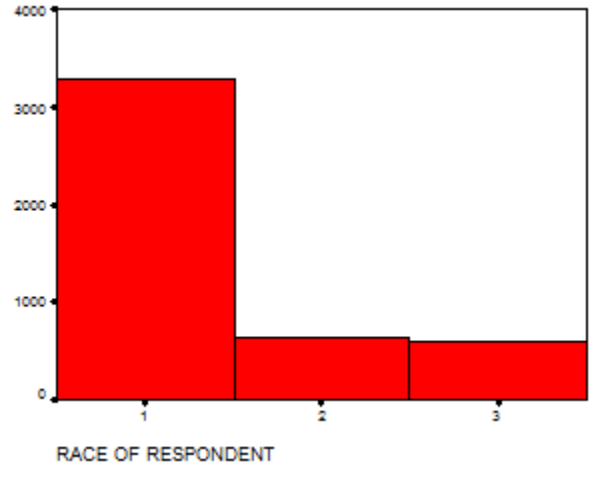
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Ans: a bar graph or pie chart
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Analysis
Answer Location: The Bar Graph | The Pie Chart
Difficulty Level: Medium

39. Which graphic device would be most appropriate to display information about "Young adults in South Korea generally have more years of schooling than young adults in the United States"?
Ans: histogram
Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Analysis
Answer Location: The Histogram
Difficulty Level: Medium

40. Explain why the following statement is true: "When constructing a pie chart, the frequencies associated with each category must sum to *N*. Likewise, if working with proportions or percentages, these must sum to 1.0 or 100%, respectively."
Ans: Students should discuss the calculation of relative frequencies and show why these must sum to 1.0 and 100%, respectively.
Learning Objective: 2-2: Calculate proportions and percentages. | 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Comprehension
Answer Location: The Pie Chart | Proportions and Percentages
Difficulty Level: Medium

41. The following graph depicts the number of respondents by racial group, where 1 = White, 2 = Black, and 3 = Other. Explain why this choice of graphic is or is not appropriate for these data.



Ans: a histogram is not appropriate for nominal data

Learning Objective: 2-5: Construct and interpret a pie chart, bar graph, histogram, the statistical map, line graph, and time-series chart.
Cognitive Domain: Comprehension
Answer Location: The Histogram
Difficulty Level: Medium

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