Using and Interpreting Statistics 3rd edition Corty Test Bank

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1. Use the table to answer the following questions.

Saltwater Taffy Flavors Purchased at a Stand in Myrtle Beach During the Summer of 1905

Ice Cream Flavor	Frequency	Cumulative Frequency	Percentage	A
Cotton Candy	87	B	1.76	100.00
Chocolate	1,237	4,862	24.99	98.24
Strawberry	875	3,625	C	73.25
Vanilla	2,500	2,750	50.52	55.57
Pistachio	250	250	5.05	5.05

A. What words are missing from the space marked by the letter A?
B. What number is missing from the space marked by the letter B?
C. What number is missing from the space marked by the letter C?
D. What is the name of this kind of table?

2. Use the given data set to create an ungrouped frequency distribution table. Be sure to include the following: frequency, cumulative frequency, percentage, and cumulative percentage columns.
An occupational therapist wants to see how many hours of aerobic exercise her clients complete in a week. Here are the values that she collected: 10, 10, 5, 7, 5, 10, 2, 4, 5, 10, 10, 3, 2, 4, 1, 8, 8, 9.

3. Use the table to answer the following questions.
Hours Studying for ACT by a High School Student During the Summer

Hours Studied for ACT	A	Frequency	Cumulative Frequency	Percentage	Cumulati Percentag
101–120	110.50	1,550	10,000	15.50	100.00
81–100	90.50	1,200	8,450	12.00	C
61–80	70.50	1,750	B	17.50	72.50
41–60	50.50	2,500	5,000	25.00	55.00
21–40	30.50	1,500	3,000	15.00	30.00
0–20	10.00	1,500	1,500	15.00	15.00

A. What words are missing from the space marked by the letter A?
B. What number is missing from the space marked by the letter B?
C. What number is missing from the space marked by the letter C?
D. What is the name of this kind of table?

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4. Use the given data set to create a grouped frequency distribution table. Be sure to include the following: midpoint, frequency, cumulative frequency, percentage, and cumulative percentage columns. Use an interval width of 10 and start the lowest interval at 1.
   An activities director at an assisted living facility wants to see how many different activities his residents participate in, in a given year. Here are the values that he collected: 10, 22, 9, 25, 17, 15, 10, 20, 14, 15, 10, 10, 23, 12, 24, 11, 18, 38, 19, 30, 25, 15, 35, 50, 41, 33, 35, 40, 33, 8.

5. For each of these phrases indicate whether it is a discrete or continuous variable.
   A. the number of pairs of bowling shoes owned by all of the bowling alleys in a small city
   B. the amount of red dye included in a popular soft drink
   C. the number of views a particular cat video has online

6. For each of the intervals in boldface type, indicate the real lower limit, the real upper limit, the interval width, and the interval midpoint.
   A. 25–29, **30–34**, 35–39
   B. 175–200, **250–275**, 300–325
   C. 1.75–2.00, **2.50–2.75**, 3.00–3.25

7. Create a bar graph for the data given below.

Sex of Participant	**Frequency of Parking Violations**
Female	15
Male	25

8. For each of the following descriptions of data sets, suggest the best kind of graph to present the data.
   A. numeric ratings of a new single from a hit band
   B. the number of fairgoers who went on a Ferris wheel in a single season
   C. the average of "Openness to New Experiences" scores on a personality survey
   D. the number of bottles of red, blonde, black, and brunette hair dye purchased by a local salon

9. Sketch distributions that have the following qualities:
   A. asymmetrical
   B. negatively skewed
   C. bimodal
   D. more than two very sharp peaks

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10. Use the given data set to create a grouped frequency distribution table. Be sure to include the following: midpoint, frequency, cumulative frequency, percentage and cumulative percentage columns. Choose the intervals that best fit the data. Also, create a graph to represent the information in the data table created.
A doctor who works for a cruise line wants to see the number of ailments passengers have reported in the last 25 years that the company has been operating. Here are the values that she collected: 100, 225, 90, 205, 178, 152, 103, 217, 148, 154, 231, 127, 249, 116, 183, 198, 230, 125, 150, 95, 187, 144, 235, 200, 99.

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Answer Key

1. A. Cumulative Percentage
   B. 4,949
   C. 17.68
   D. ungrouped frequency table
2.

Hours of Aerobic Activity per Week	Frequency	Cumulative Frequency	Percentage	Cumulative Percentage
10	5	18	27.78	100.00
9	1	13	5.56	72.22
8	2	12	11.11	66.67
7	1	10	5.56	55.56
6	0	9	0.00	50.00
5	3	9	16.67	50.00
4	2	6	11.11	33.33
3	1	4	5.56	22.23
2	2	3	11.11	16.67
1	1	1	5.56	5.56

3. A. Midpoint
   B. 7250
   C. 84.50
   D. grouped frequency table
4.

Activities Participated in	Midpoint	Frequency	Cumulative Frequency	Percentage	Cumulative Percentage
41–50	45.50	2	30	6.67	100.00
31–40	30.50	6	28	20.00	93.33
21–30	25.50	6	22	20.00	73.33
11–20	15.50	10	16	33.33	53.33
1–10	5.00	6	6	20.00	20.00

5. A. discrete
   B. continuous
   C. discrete
6. A. 29.50; 34.50; 5; 32
   B. 249.50; 275.50; 26; 262.50
   C. 2.45; 2.80; .26; 2.63
7.
8. A. histogram
   B. bar graph
   C. histogram or frequency polygon
   D. bar graph
9. Responses will vary. Review text for example images of each.
10.

Number of Ailments	Midpoint	Frequency	Cumulative Frequency	Percentage	Cumulative Percentage
241–260	250.50	1	25	4.00	100.00
221–240	230.50	4	24	16.00	96.00

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201–220	210.50	2	20	8.00	80.00
181–200	190.50	4	18	16.00	72.00
161–180	170.50	1	14	4.00	56.00
141–160	150.50	5	13	20.00	52.00
121–140	130.50	2	8	8.00	32.00
111–120	115.50	1	6	4.00	24.00
91–110	100	5	5	20.00	20.00

Histogram — answers will vary.

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1. Describe the steps involved in making a frequency distribution table.

2. A marketing researcher surveys owners of high-end clothes dryers and asks the owners how many loads of laundry they do in a given week. He makes a grouped frequency distribution that has intervals of 0–3, 4–7, 8–11, 12–15, and so on. Is this a discrete or continuous measure? What are the real limits for the 8–11 interval? For that interval, what are the interval width and midpoint? Briefly, make a case for how appropriate these intervals were for this kind of variable. The response should be in complete sentences.

3. Compare a bar graph, a histogram, and a frequency polygon. Be sure to include the different kinds of data each uses as well as at least two physical characteristics of the graphs.

4. Use the three aspects of shape of frequency distribution curves to fully describe the shape of a normal curve.

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Answer Key

1. A correct response might include the following: 1) Discrete – the number of people who watch certain programs. 2) Continuous – asking focus groups to rate a show's quality on a scale.
   The requested level of detail may vary.
2. This is a discrete measure; 7.5 and 11.5; Width = 4; Midpoint = 9.5. A possible correct case against these intervals might indicate that there is value in showing this data as ungrouped or that the upper cut-off of 15 was too high.
3. A correct response may include the following: bar graphs display discrete data, whereas histograms and frequency polygons display continuous data; bar graphs and histograms both display frequencies with bars, whereas the frequency polygon uses dots; the bars in a histogram touch each other, whereas they do not in a bar graph.
4. Possible correct answers could include the following: The modality of a normal curve means that only one high point occurs in the data set (i.e., unimodal). The skewness of a normal curve means that the data is symmetric around the midpoint of the distribution. The kurtosis of a normal curve means that the distribution is neither too peaked nor too flat.

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1. A frequency distribution is a:
   A) set of techniques used to summarize data in order to answer questions.
   B) count of how often the values of a variable occur in a set of data.
   C) graph created to misrepresent a data set.
   D) set of numbers that does not represent all the data in a population.

2. An ungrouped frequency distribution:
   A) is often represented by a graph.
   B) is often represented by a table.
   C) makes large bodies of data less manageable.
   D) makes it harder to relate data to the real world.

3. A grouped frequency distribution is a table that presents:
   A) a count of how often each value of a variable occurs in a data set.
   B) a count of how often a certain group of variables occurs in a data set.
   C) frequency counts for alternating groupings of values.
   D) frequency counts for adjacent groupings of values.

4. Frequency distributions can be made for:
   A) both nominal- and ordinal-level data
   B) both ordinal- and interval-level data
   C) nominal-, interval-, and ratio-level data
   D) nominal-, ordinal-, interval-, or ratio-level data

5. Which of these could be *best* represented using a frequency distribution?
   A) the number of Democrats in a political district
   B) the average depression score of hospital patients
   C) the typical ACT score of high school valedictorians
   D) satisfaction ratings of six different hair salons

6. Ungrouped frequency distributions are used when the:
   A) values that a variable can take are unlimited.
   B) values that a variable can take are limited.
   C) intervals that a variable can take are limited.
   D) intervals of a variable are discrete.

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7. Which of these could be *best* represented using an **ungrouped** frequency distribution?
   A) the number of stars visible each hour of the night
   B) the number of hair follicles a person has on his or her head
   C) the number of hours of television a person watches each day
   D) the number of traffic tickets given out each day of the week in Los Angeles

8. Which of these could be *best* represented using a **grouped** frequency distribution?
   A) salaries for first jobs of all graduating college students
   B) letter grades earned on a midterm exam
   C) classes for which a student has registered in a single semester
   D) marriages during a person's lifetime

9. An ungrouped frequency distribution table is considered "upside down" when the:
   A) cumulative frequency starts at the bottom of the table.
   B) data intervals alternate from larger value to smaller value.
   C) largest possible value of the variable is at the top of the table.
   D) largest possible value of the variable is at the bottom of the table.

10. A proper basic ungrouped frequency table must include:
   A) a cumulative frequency column.
   B) a title that explains the information found in the table.
   C) only rows for values that have frequencies greater than zero.
   D) only columns for values that have frequencies greater than zero.

11. f_c is the abbreviation for:
   A) frequency distribution.
   B) cumulative distribution.
   C) cumulative percentage.
   D) cumulative frequency.

12. When calculating f_c, one needs to:
   A) add up the frequencies at or above a given value of a variable.
   B) add up the frequencies at or below a given value of a variable.
   C) take the average of the frequencies at a given value of a variable.
   D) take the average of the percentages at a given value of a variable.

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13. The cumulative frequency in the top row is:
    A) the same as the number of cases in the bottom row.
    B) half the number of cases in the data set.
    C) a percentage of the cases in that column.
    D) the same as the number of cases in the data set.

14. _____ tells how many cases in a data set have a given value or a lower value.
    A) Frequency
    B) Cumulative frequency
    C) A histogram
    D) A frequency distribution

Use the following to answer questions 15-19:

Scoops of Ice Cream Flavors Purchased at a Stand in Coney Island During the Summer of 1943

Ice Cream Flavor	Frequency	A	Percentage	Cumulative Percentage
Rum Raisin	250	7,250	3.45	100.00
Chocolate	1,500	7,000	20.69	C
Strawberry	1,750	5,500	B	75.86
Vanilla	3,500	3,750	48.28	51.72
Walnut Ripple	250	250	3.45	3.45

15. In the table of Ice Cream Flavors, what is missing from the spot marked by the letter A?
    A) Interval A
    B) Cumulative Frequency
    C) Average Frequency
    D) Frequency Percentage

16. In the table of Ice Cream Flavors, what is missing from the spot marked by the letter B?
    A) .24
    B) .31
    C) 31.18
    D) 24.14

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17. In the table of Ice Cream Flavors, what is missing from the spot marked by the letter C?
    A) 96.55
    B) .97
    C) .21
    D) 21.43

18. When reading the table of Ice Cream Flavors, the cumulative frequencies can be calculated by:
    A) using a "stair-stepping" up method.
    B) using a "stair-stepping" down method.
    C) adding alternating cells in the second column.
    D) multiplying the second and third columns.

19. After thoroughly reviewing the table of Ice Cream Flavors, the owners of the ice cream stand would most likely choose to _____ for next summer.
    A) buy extra Walnut Ripple
    B) buy less Vanilla
    C) buy less Chocolate than Strawberry
    D) replace either Walnut Ripple or Rum Raisin

20. A marketing researcher will be presenting how many times certain commercials have been viewed on a company's Web site. The subjects of the commercials vary, with babies, dogs, parakeets, elderly gentlemen, goldfish, and attractive dancing models featured. What is the *best* way to organize this nominal-level data in a frequency distribution table?
    A) from highest to lowest frequency of viewings
    B) group human and nonhuman subjects
    C) alphabetically by subject type
    D) from longest to shortest commercials

21. $\frac{f}{N} \times 100$

    The above is the formula for:
    A) cumulative frequency.
    B) cumulative percentage.
    C) frequency percentage.
    D) grouped percentage.

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22. A fan magazine wants to present data on the number of objects that fans of Planet Warz have in their private collections. A grouped frequency table is preferred because:
    A) fans will have only a few number of objects in their private collections.
    B) fans can have many possible number of objects in their private collections.
    C) it is certain that many fans will have over 100 objects in their collection, indicating a ceiling effect.
    D) most of the fans will have many different collections and thus will have a few Planet Warz items, indicating a floor effect.

23. How often is the following true? Cumulative frequencies can only be calculated for ordinal-, interval-, or ratio-level data.
    A) It is always true.
    B) It is never true.
    C) It is only true with continuous data.
    D) It is only true with discrete data.

24. For which of the variables can cumulative frequencies be calculated?
    A) shoes purchased by politicians
    B) car colors sold last year
    C) pets owned in a lifetime
    D) scores on a personality scale for sense of humor

25. Percentages are useful because:
    A) calculating them only requires using whole numbers.
    B) they allow one to use interval-level data as if it were ratio-level data.
    C) they can transform scores by putting them into context.
    D) they are the only way to report nominal-level data.

26. The **cumulative percentage** restates the information in the:
    A) cumulative frequency column.
    B) grouped frequency column.
    C) frequency percentage table.
    D) ungrouped frequency table.

27. The formula for percent_c is:
    A) $(f_c/N) \times 100$.
    B) $(f_c/N) \times 10$.
    C) f_c/N.
    D) $(f/N) \times 100$.

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28. Ungrouped frequency tables work well when the:
    A) variable can have only a limited set of values.
    B) researcher wants to represent only certain values the variable can take.
    C) values the variable takes include fractions.
    D) variables are already grouped.

29. Grouped frequency tables work *best* when the:
    A) variables are already grouped.
    B) researcher wants to represent only certain values the variable can take.
    C) values the variable takes include fractions.
    D) variable is measured at the ordinal-, interval-, or ratio-level.

30. *i* is an abbreviation for:
    A) integers.
    B) instrumental variables.
    C) intervals.
    D) independent variables.

31. A food stylist has collected detailed information on the types of photographs she takes. She has taken pictures of cherries, eggs, breads, cakes, pies, apples, muffins, celery, carrots, and salmon. Can she create a grouped frequency table to summarize her work?
    A) *Yes*, as long as she remembers to calculate a cumulative percentage.
    B) *Yes*, as long as she organizes her data in a logical way (e.g., grouping the pictures of fruit).
    C) *No*, because she is dealing only with nominal data.
    D) *No*, because she is unable to clearly define her intervals.

32. A rule of thumb for the number of intervals in a grouped frequency table is to include:
    A) an even number of intervals.
    B) an odd number of intervals.
    C) 7 ± 2 intervals.
    D) 4 ± 2 intervals.

33. _____ is the convention for the width of intervals.
    A) Keeping the intervals 7 ± 2 units wide
    B) Making sure that one hasa clear midpoint in one's intervals
    C) Keeping intervals 5, 10, 20, 25, or 100 units wide
    D) Making sure that one's intervals are in even numbers

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Use the following to answer questions 34-37:

A researcher has collected 250 student ratings of the food quality in the campus coffee shop. The ratings are on a scale from 1 to 100, with higher points meaning more positive feelings. The range of values for the responses was 23–97 points. The researcher wants to present the findings in a grouped frequency table.

34. In the survey of food quality, which of these intervals would be *best*?
    A) nominal intervals
    B) only even-numbered intervals
    C) only odd-numbered intervals
    D) intervals that are 10 points wide

35. In the survey of food quality, the researcher decides to use the following intervals: 24–33, 34–43, 44–53, 54–63, 64–73, 74–83, 84–93, and 94–103. What is wrong with this choice of intervals?
    A) The intervals do not overlap enough.
    B) The intervals do not include all of the possible values for the variable of interest.
    C) There are too many intervals.
    D) There are not enough intervals.

36. In the survey of food quality, the researcher sees the flaw in the above intervals and decides to use the following intervals instead: 0-19, 20–30, 31–45, 46–65, 66–75, and 76–100. What is wrong with this choice of intervals?
    A) The intervals do not overlap enough.
    B) The intervals are not of equal width.
    C) There are too many intervals.
    D) There are not enough intervals.

37. In the survey of food quality, the researcher tries one final time and decides to use the following intervals: 20–29, 30–39, 40–49, 50–59, 60–69, 70–79, 80–89, and 90–99. This set of intervals is the best choice because:
    A) the intervals are the same width.
    B) the intervals follow the convention of being a multiple of 10.
    C) there are neither too many nor too few intervals (e.g., 7 ± 2).
    D) the intervals are the same width, the intervals follow the convention of being a multiple of 10, and there are not too many or too few intervals (e.g., 7 ± 2).

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38. When creating a grouped frequency table, the first step is to:
    A) identify the dependent variable.
    B) round the values according to the rounding rules.
    C) find the midpoints of the intervals.
    D) decide how many intervals to include.

39. While looking over her data, Sydney decides to use the following intervals to present her data: 15–19, 20–24, 25–29, 30–34, 35–39, and 40–44. What are the midpoints for each of her intervals?
    A) 16.5, 21.5, 26.5, 31.5, 41.5
    B) 18.5, 23.5, 28.5, 33.5, 38.5, 43.5
    C) 17.00, 22.00, 27.00, 32.00, 37.00, 42.00
    D) Because the intervals are of the same width, the midpoint for each interval is the same, which is 4.

40. Grouped and ungrouped frequency tables are the same, except that grouped frequency tables also include:
    A) a column for cumulative percentage.
    B) a column for cumulative frequency.
    C) a column with information on the midpoint.
    D) an upside-down organization.

41. One can find the midpoint of an interval by:
    A) calculating the cumulative percentage.
    B) calculating the cumulative frequency.
    C) counting on one's fingers.
    D) dividing the values of the endpoints by 3.

42. Having a midpoint included in one's grouped frequency table is important because it:
    A) ensures that researchers will not use an ungrouped table when they should be using a grouped one.
    B) ensures that each interval has the same width.
    C) keeps researchers from misinterpreting interval-level data.
    D) serves as a compass for the values in each interval.

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43. A grouped frequency table lists one of the intervals in a data set as 20–35. What is the midpoint of this interval?
    A) 25
    B) 30
    C) 27.5
    D) 25.5

44. If the exact value of a case is unknown, then statisticians assign it the value of the:
    A) midpoint of the interval.
    B) cumulative frequency of the interval.
    C) upper limit of the interval.
    D) lower limit of the interval.

45. If John answers "Yes" to the question, "Is it important to retain information about all unique values in a data set?" then, according to the flowchart in the chapter, John needs to use an ungrouped:
    A) bar graph.
    B) frequency polygon.
    C) frequency distribution.
    D) histogram.

46. In the five steps to make a frequency distribution table, the last step is to:
    A) communicate clearly.
    B) decide what information to include in the table.
    C) organize the data.
    D) decide the width and number of intervals.

47. When deciding the width and number of intervals in a frequency distribution table, one should:
    A) always choose an interval that is a multiple of 5.
    B) make sure that the midpoint of each intervals is a whole number.
    C) aim to have five to nine intervals.
    D) make sure the intervals will fit into the upside-down structure of the table.

48. The very first step in making a grouped frequency table is to:
    A) decide the width of the intervals.
    B) organize the data (e.g., in ascending order).
    C) label the columns.
    D) create a title.

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49. The bare minimum of what goes into a grouped frequency distribution table is the:
    A) interval and the frequency.
    B) interval and the percentage.
    C) frequency and the percentage.
    D) title and the frequency.

50. A good template for a grouped frequency distribution will include:
    A) columns of alternating widths.
    B) carefully overlapping intervals.
    C) the intervals with the lowest scores on the bottom row.
    D) the intervals with the lowest scores on the top row.

51. The components of a complete (i.e., all the bells and whistles) grouped frequency table are:
    A) interval, midpoint, frequency, cumulative frequency, percentage, and cumulative percentage.
    B) interval, frequency, cumulative frequency, percentage, and cumulative percentage.
    C) interval, midpoint, frequency, percentage, and cumulative percentage.
    D) interval, midpoint, frequency, cumulative frequency, and percentage.

52. Which research question uses discrete numbers for its data?
    A) Whichis the happiest state in the United States?
    B) How much racism can be found in the public records of a certain county?
    C) Which is the most beautiful place in the world?
    D) How many car accidents occur in Colorado each winter?

53. Which research question uses continuous numbers for its data?
    A) How many full-time students have children?
    B) How many patients are discharged from the hospital with samples of prescription drugs each year?
    C) How many car accidents occur in Colorado each winter?
    D) How much racism can be found in the public records of a certain county?

54. Continuous numbers can:
    A) only be included in grouped frequency tables.
    B) never be interval-level data.
    C) take on fractional values.
    D) never be included in frequency percentages.

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55. Bob reports that people have 3.35 pets on average. Sally argues that Bob miscalculated the data given to him as the number of pets is discrete and the final value was not a whole number. Which statement is true?
    A) Sally is right because Bob must have accidently miscalculated the data.
    B) Bob is right because he knows it is possible to perform mathematical calculations on continuous numbers that yield a fractional value.
    C) Sally is right because Bob dealt with ratio-level numbers incorrectly.
    D) Bob is right because his original data was actually continuous.

56. _____ answer the question "How many?"
    A) Nominal numbers
    B) Discrete numbers
    C) Continuous numbers
    D) Ratio numbers

57. _____ answer the question "How much?"
    A) Nominal numbers
    B) Discrete numbers
    C) Continuous numbers
    D) Ratio numbers

58. Theoretically, _____ can be made more exact by using more precise measuring instruments.
    A) continuous numbers
    B) dependent variables
    C) discrete numbers
    D) independent variables

59. Abraham is proud to announce that his new baby boy weighs 8 pounds. Ruth, his wife and a statistician, is quick to point out that the value of 8 pounds actually:
    A) is the midpoint of the interval 7.5 and 8.5 pounds.
    B) reflects the real upper limit of his actual weight.
    C) reflects the apparent upper limit of his actual weight.
    D) is the midpoint of the apparent limits of his weight.

60. A single continuous number:
    A) can have a variety of real values.
    B) represents a range of values.
    C) should only be used to represent discrete data.
    D) is the midpoint of a given interval.

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61. If the score of a happiness survey is only reported in whole numbers, an interval of scores of 80 to 90 has an apparent lower limit of _____ and an apparent upper limit of _____.
    A) 79.50; 90.50
    B) 80; 90
    C) 79; 91
    D) 90.50; 79.50

62. *Real limits* are the upper and lower bounds of a:
    A) single continuous number.
    B) single discrete number.
    C) group of continuous numbers.
    D) group of discrete numbers.

63. A hospital administrator assesses satisfaction with the patient registration and discharge process on a 1 to 10 rating scale. The final score for the survey can include decimals (e.g., 8.75) but the administrator rounds these values to the nearest whole number for the final report. In a grouped frequency distribution, she uses the intervals of 1–3, 4–6, and 7–9. In this example, which statement is true?
    A) The administrator is not concerned with real limits.
    B) The administrator cannot calculate the apparent limits.
    C) The real limits include 1 and 9.
    D) The apparent limits include 1 and 9.

64. When using continuous measures, _____ ensure that researchers are aware of the accurate level of precision their measures have.
    A) real intervals
    B) apparent intervals
    C) real limits
    D) apparent limits

65. If the score on a happiness survey is only reported in whole numbers, an interval of scores of 80 to 90 has a real lower limit of _____ and a real upper limit of _____.
    A) 79.50; 90.50
    B) 80; 90
    C) 79; 91
    D) 90.50; 79.50

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66. _____ represent how wide an interval appears to be.
    A) Ratio-level numbers
    B) Discrete numbers
    C) Apparent limits
    D) Real limits

Use the following to answer questions 67-70:

The top row showsn here is from a larger table. This assessment of sight words is known to be accurate within 15 words.

Sight Words Known by First-Grade Girls	Frequency	Cumulative Frequency	Percentage	Cumulative Percentage
330–350	25	1,250	3.54	100.00

67. From the table of first-grade girls' sight words, calculate the total number of cases included in this study.
    A) 680
    B) 25
    C) 1,250
    D) 50

68. For this interval in the table of first-grade girls' sight words, 330 and 350 are the _____ and 315 and 365 are the _____.
    A) apparent limits; real limits
    B) real limits; apparent limits
    C) continuous limits; discrete limits
    D) discrete limits; continuous limits

69. In the table of first-grade girls' sight words, the correct value of the midpoint of the real limits is:
    A) 340, the same as with the apparent limits of this interval.
    B) 170, half what it would be for the midpoint of the apparent limits.
    C) 680, twice what it would be for the midpoint of the apparent limits.
    D) 325, 15 less than it would be for the apparent limits.

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70. Consider the table of the first-grade girls' sight words; as part of a follow-up study, the researcher wants to include continuous numbers as part of the report. In what way would she have to change her existing data?
    A) She would not have to change her original data; they are already continuous.
    B) She could give a standardized reading test that yields an average score for each participant.
    C) She could narrow her intervals so as to have a more accurate picture of the data.
    D) She could report the real limits and the apparent limits for each interval.

71. Nominal- and ordinal-level data are _____ and should be graphed with _____.
    A) continuous; a frequency polygon
    B) continuous; a histogram
    C) discrete; a bar graph
    D) discrete; a histogram

72. Interval- and ratio-level data are _____ and should be graphed with _____.
    A) continuous only; a frequency polygon if discrete
    B) continuous or discrete; a histogram
    C) discrete only; a bar graph
    D) continuous or discrete; a histogram if continuous

73. What kind of graphic display of data would one use for the frequency distribution of the number of men and women in the Arkansas State Congress?
    A) a bar graph
    B) a frequency polygon
    C) a histogram
    D) a pie chart

74. _____ are represented in bar graphs.
    A) Nominal numbers
    B) Discrete variables
    C) Continuous variables
    D) Ratio numbers

75. When creating a bar graph, the _____ goes on the *Y*-axis.
    A) ordinal-level number
    B) frequency
    C) categories of the variable
    D) ratio-level number

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76. When creating a bar graph, the _____ goes on the *X*-axis.
    A) ordinal-level number
    B) frequency
    C) set of categories of the variable
    D) ratio-level number

77. There are 8 women and 27 men in the Arkansas State Congress. When graphing this distribution, the *Y*-axis should:
    A) include categories for men and women on the same line.
    B) use intervals that match those in the table.
    C) go all the way up to 30, in order to include the largest frequency.
    D) rely on interval-level data.

78. Histograms differ from bar graphs because _____, indicating that they represent continuous variables.
    A) the bars overlap each other
    B) they use lines rather than bars
    C) they use bars of different widths
    D) the bars touch each other

79. A *histogram* is a graphic display of a frequency distribution for:
    A) the sample data.
    B) the population data.
    C) a continuous data.
    D) a discrete data.

80. If the smallest value in a histogram is far away from zero, the:
    A) *Y*-axis starts at the real limit of the last interval.
    B) *Y*-axis starts at the apparent limit of the last interval.
    C) *X*-axis starts at the apparent lower limit of the first interval.
    D) *X*-axis starts at the real lower limit of the first interval.

81. A **discontinuity mark** on the *X*-axis of a histogram serves to:
    A) alert people viewing the graph that the *X*-axis starts at zero.
    B) alert people viewing the graph that the *X*-axis does not start at zero.
    C) indicate that the apparent lower limit of the first interval is zero.
    D) indicate that the first interval does not have any cases in it.

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82. In a histogram of a grouped frequency distribution, the bars are:
    A) wider than in a bar graph.
    B) narrower than in a bar graph.
    C) as wide as the apparent limits of each interval.
    D) as wide as the real limits of each interval.

83. One of the key differences between a frequency polygon and a histogram is that:
    A) the frequencies go to zero at each end of the graph.
    B) histograms represent continuous variables and frequency polygons do not.
    C) frequency polygons represent continuous variables and histograms do not.
    D) frequency polygons never include a discontinuity mark.

84. A display of a frequency distribution of a continuous variable that uses a line is called a:
    A) frequency percentage table.
    B) bar graph.
    C) histogram.
    D) frequency polygon.

85. One should primarily consider _____ when choosing between using a histogram and a frequency polygon.
    A) personal preference
    B) the number of intervals
    C) the highest frequency value
    D) the number of different categories

86. The dots in a frequency polygon represent the:
    A) apparent upper limits of the interval.
    B) real upper limits of the interval.
    C) midpoint of the interval.
    D) average frequency for that interval.

87. Knowing the shape of a distribution is important because:
    A) it is misleading to present data without a graphical display.
    B) the shape will determine whether certain statistics can be used.
    C) it helps determine the importance of the data.
    D) the shape determines what level of data is being used.

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88. Which is the most important characteristic of the shape of a distribution?
    A) modality
    B) skewness
    C) kurtosis
    D) All the answers are equally important as they all determine what kinds of statistics can be performed on a data set.

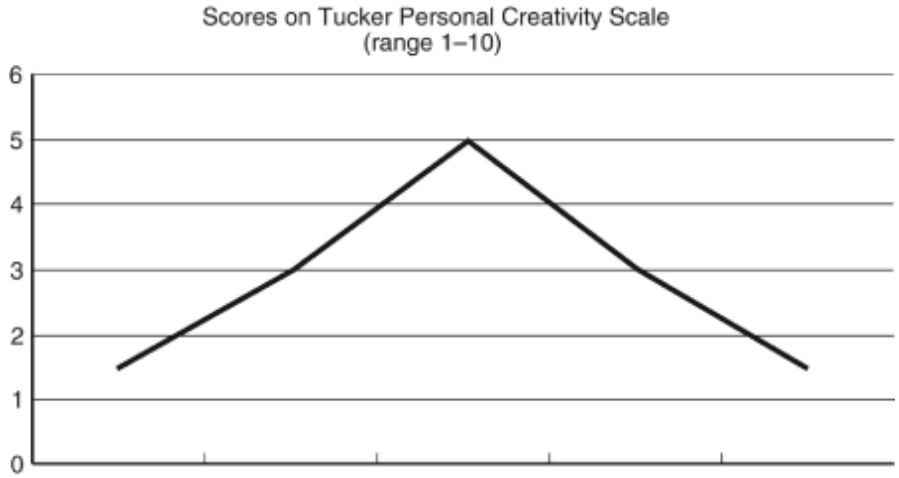
89. A frequency polygon with "normalish" shape will have:
    A) more than one high point.
    B) platykurtic tendencies.
    C) thick tails.
    D) one high point in the middle.

90. The score or interval with the highest frequency is called the _____.
    A) mode
    B) modal point
    C) modality
    D) modal skew point

91. A distribution is considered **skewed** if it:
    A) has heavy tails.
    B) has more than one mode.
    C) is not symmetric.
    D) goes to zero at each end.

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92. From the given graph, identify the shape of the distribution.



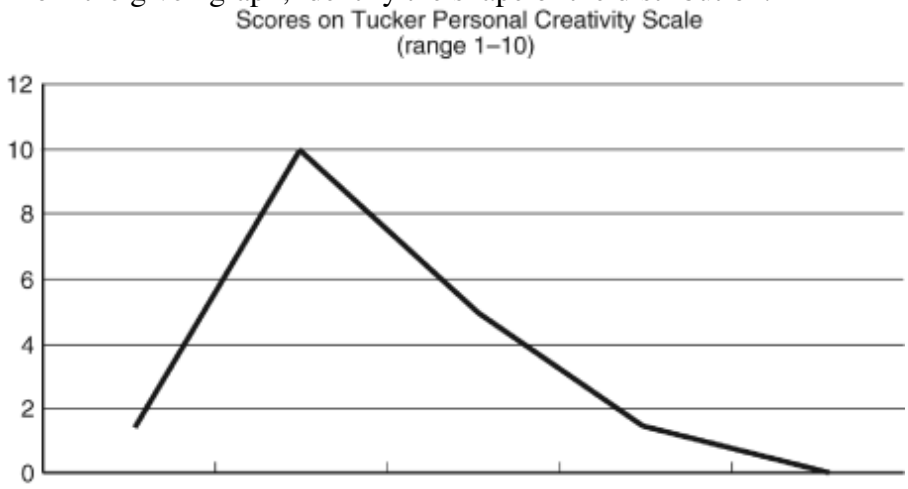
A) The figure is considered to be skewed to the left.
B) The figure is considered to be skewed to the right.
C) The figure is considered to be normal.
D) The figure is considered to be multimodal.

93. _____ describes how many high points are in the data set.
A) Negative skew
B) Kurtosis
C) Positive skew
D) Modality

94. _____ describes whether the data set is symmetric.
A) Kurtosis
B) Mode
C) Skewness
D) Modality

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95. From the given graph, identify the shape of the distribution.



A) The figure is considered to be negatively skewed.
B) The figure is considered to be positively skewed.
C) The figure is considered to be normal.
D) The figure is considered to be multimodal.

96. _____ describes whether the data set is peaked or flat.
A) Kurtosis
B) Modality
C) Positive skew
D) Negative skew

97. In a distribution that has **positive skew**, the tail of the data is:
A) off to the right.
B) off to the left.
C) very thick.
D) very thin.

98. In a distribution that has **negative skew**, the tail of the data is:
A) off to the right.
B) off to the left.
C) very thick.
D) very thin.

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99. In a "bell-shaped curve" distribution, _____ occur(s).
    A) more than one mode always.
    B) two peaks
    C) a normal level of kurtosis
    D) a higher-than-normal level of kurtosis.

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Answer Key

1. B
2. B
3. D
4. D
5. A
6. B
7. C
8. A
9. C
10. B
11. D
12. B
13. D
14. B
15. B
16. D
17. A
18. A
19. D
20. A
21. C
22. B
23. A
24. B
25. C
26. A
27. A
28. A
29. D
30. C
31. B
32. C
33. C
34. D
35. B
36. B
37. D
38. D
39. C
40. C
41. C
42. D
43. C
44. A

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45. C
46. A
47. C
48. B
49. A
50. C
51. A
52. D
53. D
54. C
55. B
56. B
57. C
58. A
59. A
60. B
61. B
62. A
63. D
64. C
65. A
66. C
67. C
68. A
69. A
70. B
71. C
72. C
73. A
74. B
75. B
76. C
77. C
78. D
79. C
80. C
81. B
82. D
83. A
84. D
85. A
86. C
87. B
88. D
89. D
90. A

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91. C
92. C
93. D
94. C
95. B
96. A
97. A
98. B
99. C

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