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practice problems

Financial Accounting (Concordia University)

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Student name:_____

TRUE/FALSE - Write 'T' if the statement is true and 'F' if the statement is false.

1) A stem-and-leaf display is a graphical portrayal of a data set that shows the data set's overall pattern of variation.

- ⊚ true
- ⊚ false

2) The relative frequency is the frequency of a class divided by the total number of measurements.

- ⊚ true
- ⊚ false

3) A bar chart is a graphic that can be used to depict qualitative data.

- ⊚ true
- ⊚ false

4) Stem-and-leaf displays and dot plots are useful for detecting outliers.

- ⊚ true
- ⊚ false

5) A scatter plot can be used to identify outliers.

- ⊚ true
- ⊚ false

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⊙ true

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7) When we wish to summarize the proportion (or fraction) of items in a class, we use the frequency distribution for each class.

- ⊚ true
- ⊚ false

8) When establishing the classes for a frequency distribution, it is generally agreed that the more classes you use the better your frequency distribution will be.

- ⊚ true
- ⊚ false

9) The cumulative frequency for a class will always be at least as large as the cumulative frequency for any class with a smaller upper boundary.

- ⊚ true
- ⊚ false

10) A frequency table includes row and column percentages.

- ⊚ true
- ⊚ false

11) When constructing a graphical display that utilizes categorical data, classes that have frequencies of 5 percent or less are usually combined together into a single category.

- ⊚ true
- ⊚ false

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⊙ true

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13) In the first step of setting up a Pareto chart, a frequency table should be constructed of the defects (or categories) in decreasing order of frequency.

- ⊚ true
- ⊚ false

14) It is possible to create different interpretations of the same graphical display by simply using different captions.

- ⊚ true
- ⊚ false

15) Beginning the vertical scale of a graph at a value different from zero can cause increases to look more dramatic.

- ⊚ true
- ⊚ false

16) A runs plot is a form of scatter plot.

- ⊚ true
- ⊚ false

17) The stem-and-leaf display is advantageous because it allows us to actually see the measurements in the data set.

- ⊚ true
- ⊚ false

18) Splitting the stems refers to assigning the same stem to two or more rows of the stem-and-leaf display.

- ⊚ true
- ⊚ false

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19) When data are qualitative, the bars should never be separated by gaps.

- ⊚ true
- ⊚ false

20) Each stem of a stem-and-leaf display should be a single digit.

- ⊚ true
- ⊚ false

21) Leaves on a stem-and-leaf display should be rearranged so that they are in increasing order from left to right.

- ⊚ true
- ⊚ false

22) Gauges feature a single measure showing variation over time.

- ⊚ true
- ⊚ false

23) Data drill down is a form of data discovery.

- ⊚ true
- ⊚ false

24) Treemaps are used to compare multiple stem-and-leaf diagrams.

- ⊚ true
- ⊚ false

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25) Sparklines always need to be displayed with either their axes or coordinates.

- ⊚ true
- ⊚ false

26) A bullet graph features a single measure and displays it as either a horizontal or vertical bar.

- ⊚ true
- ⊚ false

27) Key performance indicators are best represented by a data discovery method.

- ⊚ true
- ⊚ false

28) A treemap displays information as a series of clustered rectangles.

- ⊚ true
- ⊚ false

29) Sparklines are line charts and are often embedded with the text where they are being discussed.

- ⊚ true
- ⊚ false

30) An analytic dashboard presents both current and historical trends of a business's key performance indicators.

- ⊚ true
- ⊚ false

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31) If space is an issue when presenting analytic dashboard graphics, gauges should be used most frequently.

- ⊚ true
- ⊚ false

MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.

32) Which of the following is not a graphical tool for descriptive analytics (dashboards)?

A) bullet graph
B) sparkline
C) raw data
D) treemap
E) gauge

33) A(n) _____ is a graphical presentation of the current status and historical trends of a business's key performance indicators.

A) frequency distribution
B) histogram
C) Pareto chart
D) dashboard

34) As a business owner, I have requested my staff to develop a set of dashboards that can be used by the public to show wait time at each of my four local coffee shops at peak times during the day and whether the time is short, medium, or long. Which of the following graphical displays would be the best choice?

A) bullet graph
B) sparkline
C) treemap
D) gauges

35) Which of the following is the best analytic dashboard graphical method for visualizing hierarchical information?

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C) treemap
A) bullet graph D) gauge
B) sparkline

36) Which of the following tools used by graphical descriptive analytics will show variation over time?

C) treemap
A) bullet graph D) gauge
B) sparkline

37) A(n) _____ is a graph of a cumulative distribution.

C) ogive
A) histogram D) pie chart
B) scatter plot

38) _____ can be used to study the relationship between two variables.

D) Dot plots
A) Cross-tabulation tables
B) Frequency tables
C) Cumulative frequency distributions

39) Row or column percentages can be found in

D) cumulative
A) frequency tables. frequency tables.
B) relative frequency tables.
C) cross-tabulation tables.

40) All of the following are used to describe quantitative data except the _____.

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A) histogram
B) stem-and-leaf chart
C) dot plot
D) pie chart

41) An unusually large or small observation separated from the rest of the data is a(n) _____.

A) absolute extreme
B) outlier
C) mode
D) quartile

42) Which of the following graphs is for qualitative data?

A) histogram
B) bar chart
C) ogive plot
D) stem-and-leaf

43) A plot that allows us to visualize the relationship between two variables is a(n) _____ plot.

A) frequency
B) scatter
C) dot
D) ogive

44) A stem-and-leaf display is best used to _____.

A) provide a point estimate of the variability of the data set
B) provide a point estimate of the central tendency of the data set
C) display the shape of the distribution
D) display a two-variable treemap.

45) Which of the following divides quantitative measurements into classes and graphs the frequency, relative frequency, or percentage frequency for each class?

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D) scatter plot

A) histogram
B) dot plot
C) stem-and-leaf display

46) A _____ displays the frequency of each class with qualitative data and a _____ displays the frequency of each class with quantitative data.

A) histogram, stem-and-leaf display
B) bar chart, histogram
C) scatter plot, bar chart
D) stem-and-leaf, pie chart

47) A _____ shows the relationship between two variables.

A) stem-and-leaf
B) bar chart
C) histogram
D) scatter plot
E) pie chart

48) A(n) _____ can be used to differentiate the "vital few" causes of quality problems from the "trivial many" causes of quality problems.

A) histogram
B) scatter plot
C) pareto chart
D) ogive plot
E) stem-and-leaf display

49) _____ and _____ are used to describe qualitative (categorical) data.

A) Stem-and-leaf displays, scatter plots
B) Scatter plots, histograms
C) Dot plots, bar charts
D) Bar charts, pie

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charts

E) Pie charts, histograms

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50) Which one of the following graphical tools is used with quantitative data?

A) bar chart
B) histogram
C) pie chart
D) Pareto chart

51) When developing a frequency distribution, the class (group) intervals must be _____.

A) large
B) small
C) integer
D) nonoverlapping
E) equal

52) Which of the following graphical tools is not used to study the shapes of distributions?

A) stem-and-leaf display
B) scatter plot
C) histogram
D) dot plot

53) All of the following are used to describe qualitative data except the _____.

A) bar chart
B) pie chart
C) histogram
D) Pareto chart

54) If there are 130 values in a data set, how many classes should be created for a frequency histogram?

A) 4
B) 5
C) 6

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D) 7
E) 8

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55) If there are 120 values in a data set, how many classes should be created for a frequency histogram?

A) 4
B) 5
C) 6
D) 7
E) 8

56) If there are 62 values in a data set, how many classes should be created for a frequency histogram?

A) 4
B) 5
C) 6
D) 7
E) 8

57) If there are 30 values in a data set, how many classes should be created for a frequency histogram?

A) 4
B) 5
C) 6
D) 7
E) 8

58) A CFO is looking at what percentage of a company's resources are spent on computing. He samples companies in the pharmaceutical industry and develops the following stem-and-leaf display (leaf unit = 0.1).

```
 5   269
 6   255568999
 7   11224557789
 8   001222458
 9   02455679
10   1556
11   137
12
13   255
```


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What is the approximate shape of the distribution of the data?

A) normal
B) skewed to the right
C) skewed to the left
D) bimodal
E) uniform

59) A CFO is looking at what percentage of a company's resources are spent on computing. He samples companies in the pharmaceutical industry and develops the following stem-and-leaf display (leaf unit = 0.1).

```
 5   269
 6   255568999
 7   11224557789
 8   001222458
 9   02455679
10   1556
11   137
12
13   255
```

What is the smallest percentage spent on R&D?

A) 5.9
B) 5.6
C) 5.2
D) 5.02
E) 50.2

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```
 5   269
 6   255568999
 7   11224557789
 8   001222458
 9   02455679
10   1556
11   137
12

13   255
```

If you were creating a frequency histogram using these data, how many classes would you create?

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A) 4
B) 5
C) 6
D) 7
E) 8

61) A CFO is looking at what percentage of a company's resources are spent on computing. He samples companies in the pharmaceutical industry and develops the following stem-and-leaf display (leaf unit = 0.1).

```
 5   269
 6   255568999
 7   11224557789
 8   001222458
 9   02455679
10   1556
11   137
12
13   255
```

What would be the class length used in creating a frequency histogram?

A) 1.4
B) 8.3
C) 1.2
D) 1.7
E) 0.9

62) A CFO is looking at what percentage of a company's resources are spent on computing. He samples companies in the pharmaceutical industry and develops the following stem-and-leaf display (leaf unit = 0.1).

```
 5   269
 6   255568999
 7   11224557789
 8   001222458
 9   02455679
10   1556
11   137
12
13   255
```


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What would be the first class interval for the frequency histogram?

A) 5.2<6.6
B) 5.2<6.0
C) 5.0<6.0
D) 5.0<6.4
E) 5.2<6.4

63) A company's Chief Operating Officer (COO) keeps track of the mileage on her trips from her office at corporate headquarters to the company's off-site manufacturing facility and its nearby suppliers. The stem-and-leaf display of the data for one year is below.

76	9
77	114
78	
79	07
80	88
81	2
82	1
83	88

How many trips were used in this display?

A) 7
B) 9
C) 10
D) 11
E) 12

64) A company's Chief Operating Officer (COO) keeps track of the mileage on her trips from her office at corporate headquarters to the company's off-site manufacturing facility and its nearby suppliers. The stem-and-leaf display of the data for one year is below.

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76	9
77	114
78	
79	07
80	88
81	2
82	1
83	88

In developing a histogram of these data, how many classes would be used?

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A) 4
B) 5
C) 6
D) 7
E) 8

65) A company's Chief Operating Officer (COO) keeps track of the mileage on her trips from her office at corporate headquarters to the company's off-site manufacturing facility and its nearby suppliers. The stem-and-leaf display of the data for one year is below.

76	9
77	114
78	
79	07
80	88
81	2
82	1
83	88

What would be the class length for creating the frequency histogram?

A) 14
B) 9
C) 27
D) 18
E) 23

66) A company collected the ages from a random sample of its middle managers, with the resulting frequency distribution shown below.

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What would be the approximate shape of the relative frequency histogram?

A) symmetrical
B) uniform
C) linear
D) skewed to the left
E) skewed to the right

67) A company collected the ages from a random sample of its middle managers, with the resulting frequency distribution shown below.

What is the relative frequency for the class with the greatest frequency?

A) .132
B) .226
C) .231
D) .283
E) .288

68) A company collected the ages from a random sample of its middle managers, with the resulting frequency distribution shown below.

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What is the midpoint of the third class interval?

A) 22.5
B) 27.5
C) 32.5
D) 37.5
E) 42.5

69) The general term for a graphical display of categorical data made up of vertical or horizontal bars is called a(n) _____.

A) pie chart
B) Pareto chart
C) bar chart
D) ogive plot

70) Pareto charts are frequently used to identify _____.

A) random data
B) the most common types of defects
C) outliers that do not show up on a dot plot
D) the cause for extreme skewness to the right

71) A graphical portrayal of a quantitative data set that divides the data into classes and gives the frequency of each class is a(n) _____.

A) ogive plot
B) dot plot
C) histogram
D) Pareto chart
E) bar chart

72) The number of measurements falling within a class interval is called the _____.

A) frequency
B) relative frequency

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C) leaf
D) cumulative sum

73) A relative frequency histogram having a longer tail to the right than to the left is said to be _____.

A) skewed to the left
B) normal
C) a scatter plot
D) skewed to the right

74) The proportion of measurements in a class is called the _____ of that class.

A) frequency
B) relative frequency
C) leaf
D) cumulative percentage

75) A histogram that has a longer tail extending toward larger values is _____.

A) skewed to the left
B) normal
C) a scatter plot
D) skewed to the right

76) A histogram that has a longer tail extending toward smaller values is _____.

A) skewed to the left
B) normal
C) a scatter plot
D) skewed to the right

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77) A type of very simple graph that can be used to summarize a quantitative data set is a(n) _____.

A) runs plot
B) ogive plot
C) dot plot
D) pie chart

78) An example of manipulating a graphical display to distort reality is _____.

A) starting the axes at zero
B) making the bars in a histogram equal widths
C) stretching the axes
D) adding an unbiased caption

79) As a general rule, when creating a stem-and-leaf display, there should be _____ stem values.

A) between 3 and 10
B) between 1 and 100
C) no fewer than 20
D) between 5 and 20

80) At the end of their final exam, 550 students answered an additional question in which they rated their instructor's teaching effectiveness, with the following results.

	Student's Rating of Instructor	
Student's Final Grade	Very or Somewhat Effective	Very or Somewhat Ineffective
A	190	85
B	75	120
C	20	17
D	9	1
F	1	1

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What proportion of the students who rated their instructor as very or somewhat effective received a B or better in the class?

A) 0.345
B) 0.254
C) 0.482
D) 0.898
E) 0.644

81) At the end of their final exam, 550 students answered an additional question in which they rated their instructor's teaching effectiveness, with the following results.

	Student's Rating of Instructor	
Student's Final Grade	Very or Somewhat Effective	Very or Somewhat Ineffective
A	190	85
B	75	120
C	20	17
D	9	18
F	1	1

What proportion of the students who rated their instructor as very or somewhat effective received a C or lower in the class?

A) 0.03
B) 0.06
C) 0.10
D) 0.13
E) 0.15

82) 822 recently purchased books were randomly selected from all recent book purchases over the Internet. The chart below shows the breakdown of the

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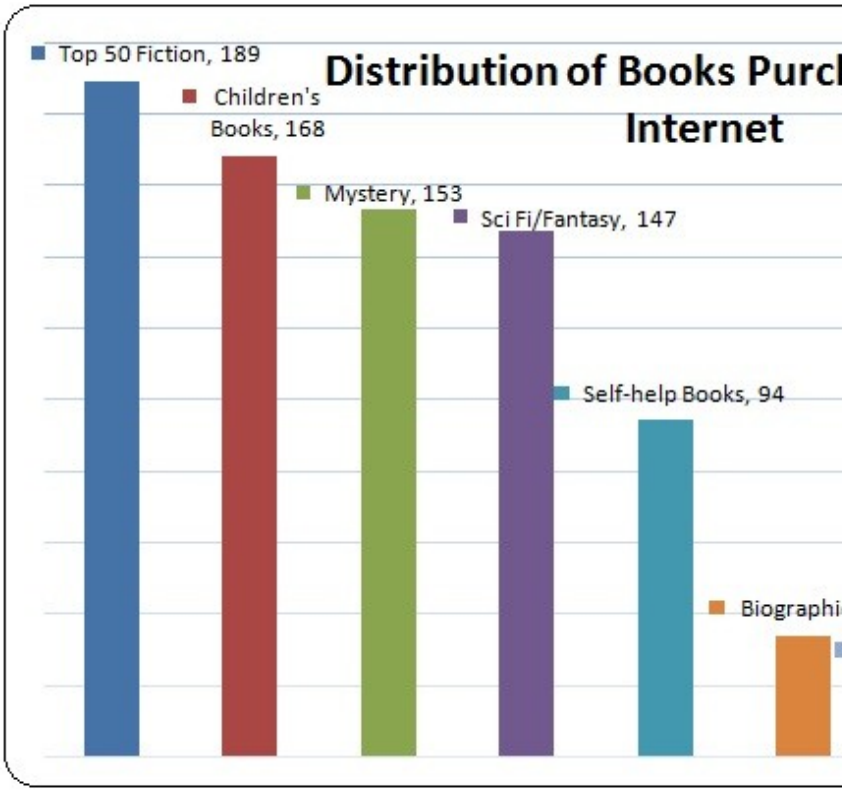
classification of the book type.



What percentage of the books in the sample were either mystery or science fiction/fantasy?

A) 18.61
B) 36.50
C) 17.88
D) 24.33
E) 22.99

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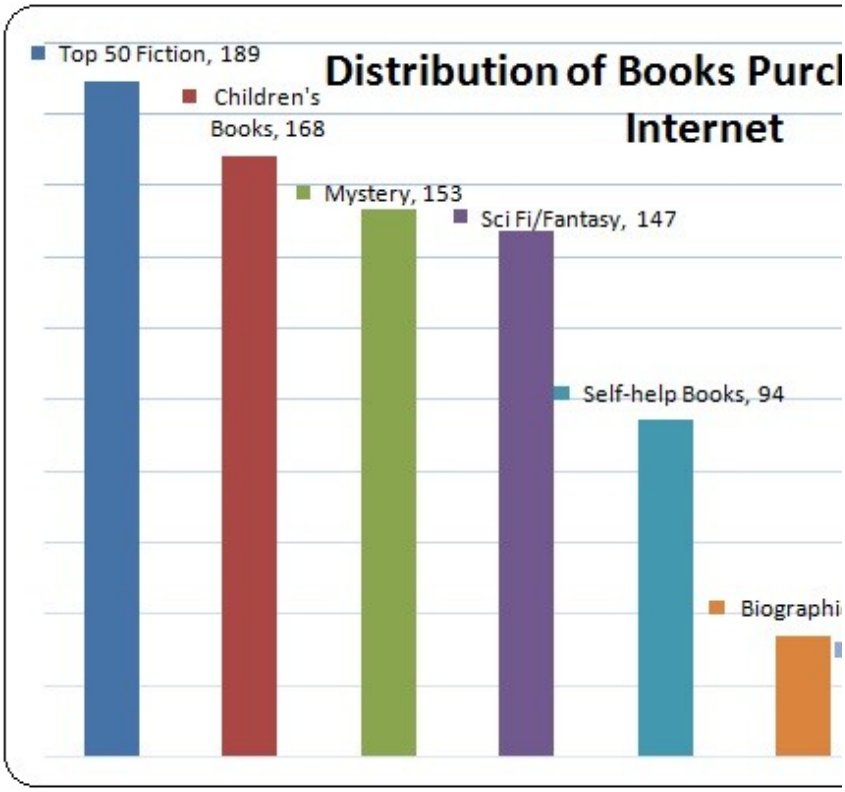
83) 822 recently purchased books were randomly selected from all recent book purchases over the Internet. The chart below shows the breakdown of the classification of the book type.



What percentage of the books in the sample were self-help books?

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A) 11.44
B) .1144
C) 1.82
D) 0.0182
E) 0.940

84) 822 recently purchased books were randomly selected from all recent book purchases over the Internet. The chart below shows the breakdown of the classification of the book type.

What percentage of the books in the sample were in the top two categories?

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A) 22.99
B) 20.44
C) 4.50
D) 43.43
E) 0.4343

85) Using the following data, describe the shape of the data distribution.

1. 11.5	6. 13.7	11. 11.0	16. 14.5
2. 13.5	7. 14.0	12. 13.0	17. 15.5
3. 12.5	8. 12.0	13. 16.7	18. 13.0
4. 15.2	9. 12.7	14. 12.5	19. 18.2
5. 14.7	10. 12.5	15. 11.5	20. 11.7

A) skewed to the left
B) bimodal
C) normal
D) skewed to the right

86) Using the following data, what would be the range of the values of the stem in a stem-and-leaf display?

1. 11.5	6. 13.7	11. 11.0	16. 14.5
2. 13.5	7. 14.0	12. 13.0	17. 15.5
3. 12.5	8. 12.0	13. 16.7	18. 13.0
4. 15.2	9. 12.7	14. 12.5	19. 18.2
5. 14.7	10. 12.5	15. 11.5	20. 11.7

A) 11-17
B) 11-18
C) 10-18
D) 12-17
E) 12-18

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87) Using the following data, what would be the leaf unit in a stem-and-leaf display?

1. 11.5	6. 13.7	11. 11.0	16. 14.5
2. 13.5	7. 14.0	12. 13.0	17. 15.5
3. 12.5	8. 12.0	13. 16.7	18. 13.0
4. 15.2	9. 12.7	14. 12.5	19. 18.2
5. 14.7	10. 12.5	15. 11.5	20. 11.7

A) 1.0
B) 10
C) .10
D) .01
E) .20

88) Consider the following data on distances traveled by people to visit the local amusement park and calculate the relative frequency for the shortest distance.

Distance	Frequency
1-8 miles	15
9-16 miles	12
17-24 miles	7
25-32 miles	5
33-40 miles	1

A) .375
B) .150
C) .500
D) .300
E) .333

89) Consider the following data on distances traveled by people to visit the local amusement park and calculate the relative frequency for the distances over 24 miles.

Distance	Frequency
1-8 miles	15
9-16 miles	12
17-24 miles	7
25-32 miles	5
33-40 miles	1

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A) .375
B) .150
C) .125
D) .025
E) .325

90) The following is a partial relative frequency distribution of grades in an introductory statistics course.

Grade	Relative Frequency
A	0.22
B	?
C	0.18
D	0.17
F	0.06

Find the relative frequency for the B grade.

A) .78
B) .27
C) .65
D) .37
E) .47

91) The following is a relative frequency distribution of grades in an introductory statistics course.

Grade	Relative Frequency
A	0.22
B	?
C	0.18
D	0.17
F	0.06

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If this was the distribution of 200 students, find the frequency for the highest two grades.

A) 44
B) 118
C) 59
D) 74
E) 35

92) The following is a relative frequency distribution of grades in an introductory statistics course.

Grade	Relative Frequency
A	0.22
B	?
C	0.18
D	0.17
F	0.06

If this was the distribution of 200 students, find the frequency of failures.

A) 12
B) 6
C) 23
D) 46
E) 3

93) The following is a relative frequency distribution of grades in an introductory statistics course.

Grade	Relative Frequency
A	0.22
B	?
C	0.18

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D	0.17
F	0.06

If we wish to depict these data using a pie chart, find how many degrees should be assigned to the highest grade of A.

A) 61.1
B) 22.0
C) 79.2
D) 90.0
E) 212.40

94) Recently an advertising company called 200 people and asked them to identify the company that was in an ad running nationwide. The following results were obtained.

	Female	Male	Total
Correctly recalled the company	66	50	116
Incorrectly recalled the company	44	40	84
Total	110	90	200

What percentage of those surveyed were female and could not recall the company?

A) 40.0
B) 22.0
C) 52.4
D) 66.7
E) 37.9

95) Recently an advertising company called 200 people and asked them to identify the company that was in an ad running nationwide. The following results were obtained.

	Female	Male	Total
Correctly recalled the company	66	50	116

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Incorrectly recalled the company	44	40	84
Total	110	90	200

What percentage of those surveyed could not correctly recall the company?

A) 58.00
B) 56.89
C) 55.00
D) 43.10
E) 42.00

96) A local electronics retailer recently conducted a study on purchasers of large screen televisions. The study recorded the type of television and the credit account balance of the customer at the time of purchase. They obtained the following results.

Credit Balance	LED	LCD	Plasma	Projection
Under $200	10	16	40	5
$200 — $800	8	12	24	15
Over $800	16	12	16	30
Total	34	40	80	50

What percentage of purchases were plasma televisions by customers with the smallest credit balances?

A) 50.0
B) 39.2
C) 56.3
D) 34.8
E) 19.6

97) A local electronics retailer recently conducted a study on purchasers of large screen televisions. The study recorded the type of television and the credit account balance of the customer at the time of purchase. They obtained the following results.

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Credit Balance	LED	LCD	Plasma	Projection
Under $200	10	16	40	5
$200 — $800	8	12	24	15
Over $800	16	12	16	30
Total	34	40	80	50

What percentage of the customers had the highest credit balances and purchased an LCD television?

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A) 36.3
B) 5.9
C) 19.6
D) 56.3
E) 16.2

98) The number of weekly sales calls by a sample of 25 pharmaceutical salespersons is below.

24, 56, 43, 35, 37, 27, 29, 44, 34, 28, 33, 28, 46, 31, 38, 41, 48, 38, 27, 29, 37, 33, 31, 40, 50

How many classes should be used in the construction of a histogram?

A) 4
B) 6
C) 10
D) 5
E) 2

99) The number of weekly sales calls by a sample of 25 pharmaceutical salespersons is below.

24, 56, 43, 35, 37, 27, 29, 44, 34, 28, 33, 28, 46, 31, 38, 41, 48, 38, 27, 29, 37, 33, 31, 40, 50

What is the shape of the distribution of the data?

A) skewed to the right
B) skewed to the left
C) normal
D) bimodal

100) The number of items rejected daily by a manufacturer because of defects for the last 30 days are:

20, 21, 8, 17, 22, 19, 18, 19, 14, 17, 11, 6, 21, 25, 4, 19, 9, 12, 16, 16, 10, 28, 24, 6, 21, 20, 25, 5, 17, 8

How many classes should be used in constructing a histogram?

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A) 6
B) 5
C) 7
D) 4
E) 8

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

101) The number of weekly sales calls by a sample of 25 pharmaceutical salespersons is below.

24, 56, 43, 35, 37, 27, 29, 44, 34, 28, 33, 28, 46, 31, 38, 41, 48, 38, 27, 29, 37, 33, 31, 40, 50Construct an ogive of the weekly sales calls.

102) The number of items rejected daily by a manufacturer because of defects for the last 30 days are:

20, 21, 8, 17, 22, 19, 18, 19, 14, 17, 11, 6, 21, 25, 4, 19, 9, 12, 16, 16, 10, 28, 24, 6, 21, 20, 25, 5, 17, 8

Complete this frequency table for these data.

	Frequency	Rel Freq	Cum Freq
4 < 9			
9 < 14			
14 < 19			
19 < 24			

24 < 29

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103) The number of items rejected daily by a manufacturer because of defects for the last 30 days are:

20, 21, 8, 17, 22, 19, 18, 19, 14, 17, 11, 6, 21, 25, 4, 19, 9, 12, 16, 16, 10, 28, 24, 6, 21, 20, 25, 5, 17, 8

Construct a stem-and-leaf display.

104) The number of items rejected daily by a manufacturer because of defects for the last 30 days are:

20, 21, 8, 17, 22, 19, 18, 19, 14, 17, 11, 6, 21, 25, 4, 19, 9, 12, 16, 16, 10, 28, 24, 6, 21, 20, 25, 5, 17, 8

Construct an ogive of the number of items rejected daily.

105) Consider the following data.

1. 11.5 6. 13.7 11. 11.0 16. 14.5 213.7 14.1 13.1 15.5 .0 20 75

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3. 12.5	8. 12.0	13. 16.7	18. 13.0
4. 15.2	9. 12.7	14. 12.5	19. 18.2
5. 14.7	10. 12.5	15. 11.5	20. 11.7

Create a stem-and-leaf display for the sample.

106) Consider the following data on distances traveled by people to visit the local amusement park.

Distance	Frequency
1-8 miles	15
9-16 miles	12
17-24 miles	7
25-32 miles	5
33-40 miles	1

Construct an ogive that corresponds to the frequency table.

107) The following is a relative frequency distribution of grades in an introductory statistics course.

Grade	Relative Frequency
A	0.22
B	0.37
C	0.18
D	0.17
F	0.06

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If this was the distribution of 200 students, give the frequency distribution for this data.

108) The following is a relative frequency distribution of grades in an introductory statistics course.

Grade	Relative Frequency
A	0.22
B	0.37
C	0.18
D	0.17
F	0.06

Construct a percent bar chart for this data.

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109) The following is a relative frequency distribution of grades in an introductory statistics course.

Grade	Relative Frequency
A	0.22
B	0.37
C	0.18
D	0.17
F	0.06

If we wish to depict these data using a pie chart, find how many degrees (out of 360 degrees) should be assigned to each grade.

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110) Fill in the missing components of the following frequency distribution constructed for a sample size of 50.

Class	Frequency	Rel Frequency	Cum Rel Freq
___ < 7.95			0.12
___ < 8.05			0.48
8.05 < ___		0.24	
___<8.25		0.10	
8.25 < ___			

111) Recently an advertising company called 200 people and asked them to identify the company that was in an ad running nationwide. They obtained the following results.

	Female	Male	Total
Correctly recalled the company	66	50	116
Incorrectly recalled the company	44	40	84
Total	110	90	200

Construct a table of row percentages.

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112) Recently an advertising company called 200 people and asked them to identify the company that was in an ad running nationwide. They obtained the following results.

	Female	Male	Total
Correctly recalled the company	66	50	116
Incorrectly recalled the company	44	40	84
Total	110	90	200

Construct a table of column percentages.

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113) A local electronics retailer recently conducted a study on purchasers of large screen televisions. The study recorded the type of television and the credit account balance of the customer at the time of purchase. They obtained the following results.

Construct a table of row percentages.

114) A local electronics retailer recently conducted a study on purchasers of large screen televisions. The study recorded the type of television and the credit account balance of the customer at the time of purchase. They obtained the following results.

Construct a table of column percentages.

115) Math test anxiety can be found throughout the general population. A study of 116 seniors at a local high school was conducted. The following table was produced from the data.

Complete the missing parts.

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116) The number of weekly sales calls by a sample of 25 pharmaceutical salespersons is below.

24, 56, 43, 35, 37, 27, 29, 44, 34, 28, 33, 28, 46, 31, 38, 41, 48, 38, 27, 29, 37, 33, 31, 40, 50

Construct a histogram.

117) The number of weekly sales calls by a sample of 25 pharmaceutical salespersons is below.

24, 56, 43, 35, 37, 27, 29, 44, 34, 28, 33, 28, 46, 31, 38, 41, 48, 38, 27, 29, 37, 33, 31, 40, 50

Construct a stem-and-leaf plot.

118) The number of weekly sales calls by a sample of 25 pharmaceutical salespersons is below.

24, 56, 43, 35, 37, 27, 29, 44, 34, 28, 33, 28, 46, 31, 38, 41, 48, 38, 27, 29, 37, 33, 31, 40, 50

Construct a frequency polygon.

119) The following table lists the types of customer complaint calls on satellite

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TV service during the first two months after installation.

No signal detected	20 %
Can't receive local channels	14 %
Missing channels	21 %
Intermittent reception	8 %
Remote control problems	2 %
Other issues	5 1 % 2

Construct a Pareto chart.

120) The following data consist of the number of sick days taken by the 100 employees at a small manufacturing company for the past 18 months. Construct a dot plot of these data and describe the distribution.

5, 1, 4, 8, 0, 6, 3, 5, 3, 4, 7, 15, 5, 8, 2, 1, 5, 4

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Answer Key Test name: ch2

1) TRUE

2) TRUE

3) TRUE

4) TRUE

5) FALSE

6) TRUE

7) FALSE

8) FALSE

9) TRUE

10) FALSE

11) TRUE

12) FALSE

13) TRUE

14) TRUE

15) TRUE

16) TRUE

17) TRUE

18) TRUE

19) FALSE

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20) FALSE

21) TRUE

22) FALSE

23) TRUE

24) FALSE

25) FALSE

26) TRUE

27) FALSE

28) TRUE

29) TRUE

30) TRUE

31) FALSE

32) C

33) D

34) A

35) C

36) B

37) C

38) A

39) C

40) D

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41) B

42) B

43) B

44) C

45) A

46) B

47) D

48) C

49) D

50) B

51) D

52) B

53) C

54) E

55) D

56) C

57) B

58) B

59) C

60) C

61) A

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62) A

63) E

64) A

65) D

66) D

67) D

68) C

69) C

70) B

71) C

72) A

73) D

74) B

75) D

76) A

77) C

78) C

79) D

80) D

81) C

82) B

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83) A

84) D

85) D

86) B

87) C

88) A

89) B

90) D

91) B

92) A

93) C

94) B

95) E

96) E

97) B

98) D

99) A

100) B

101) %media:image058.png%

Create a frequency table with cumulative relative frequency and then construct the graph using the cumulative frequency points.

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Classes	Frequency	RelFreq	Cum RelFreq
24 < 31	7	0.28	0.28
31 < 38	8	0.32	0.60
38 < 45	6	0.24	0.84
45 < 52	3	0.12	0.96
52 < 57	1	0.04	1.00

102)

Classes	Frequency	RelFreq	Cum RelFreq
4 < 9	6	0.2	0.2
9 < 14	4	0.133	0.333
14 < 19	7	0.233	0.567
19 < 24	9	0.30	0.867
24 < 29	4	0.133	1.00

The Cum Freq column should be .566, .866, and 0.999. The values listed do not add to 1.00 exactly due to rounding.Using the given classes, frequency = number of rejected items in each class, relative frequency = frequency/30, and cumulative frequency = sum of successive class relative frequencies.

103) One possible stem-and-leaf display (with each stem split into five):

Stem	Leaf		
0	45	0	66
		0	889

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1	01
1	2
1	4
1	66777
1	8999
2	00111
2	2
2	455
2	
2	8

A second possible stem-and-leaf display (with each stem split into two):

Stem	Leaf
0	4
0	566889
1	0124
1	66777899
2	0011124
2	558

Stem should be the 10s unit. Construct by splitting stems, since the range of values is only 5-28 and there should be approximately 10 stems. When splitting the stem, consider the number of values in the split stems. Leaf unit should be the ones unit.

104) %media:capture3graph_jpg.ext%

Construct a frequency table (5 classes) with cumulative relative frequency.

Classes	Frequency	RelFreq	Cum RelFreq
4 < 9	6	0.20	0.20
9 < 14	4	0.13	0.33
14 <	7	0.23	0.57

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19		23	57
19 < 24	9	0.30	0.87
24 < 29	4	0.13	1.00

105) One possible stem-and-leaf display as might be created by Minitab:Stem-and-leaf of given data, N = 20, Leaf Unit = 0.10

			1 17
4	11	0 5 5 7	1 18 2
9	12	0 5 5 5 7	
(4)	13	0 0 5 7	
7	14	0 5 7	
4	15	2 5	
2	16	7	

Stems should be from 11 to 18; leaves are the tenth unit.

106) %media:image078.png%

Calculate the relative frequency for each class (15/40, 12/40, 7/40, 5/40, 1/40; or .375, .30, .175, .125, and .025) and then the cumulative frequency (.375, .675, .850, .975, 1.00).

107)

Grade	Relative Frequency	C	36
A	44	D	34
B	74	F	12

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Convert from proportion (relative frequency) to frequency by multiplying each relative frequency by 200 (e.g., .22 × 200 = 44 for grade A).

108) ***%media:image086.png%***

Each grade category is displayed as a bar on a percent bar chart.

109)

Grade	Relative Frequency
A	79.2
B	133.2
C	64.8
D	61.2
F	21.6

Each proportion (relative frequency) is considered that portion of a circle's 360 degrees. Multiply the relative frequency (proportion) by 360 to convert to actual circle degrees (e.g., grade A: .22 × 360 = 79.2 degrees).

110)

Class	Frequency	Rel Frequency	Cum Rel Freq	7 . 9 5 <	1	0 . 3 6	0 . 4 8
7.85 < 7.95	6	0.12	0.12				

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8.05			
8.05 < 8.15	12	0.24	0.72
8.15 < 8.25	5	0.10	0.82
8.25 < 8.35	9	0.18	1.00

Work each row to generate the missing frequency and/or relative frequency given a sample size of 50. For example, first class: cum rel freq = rel freq = x/50 = 0.12, so x = 6. Complete the class interval by recognizing that the second class beginning boundary is the end of the first interval's boundary and using the class length calculated in the second class (0.10) to apply to all other classes.

111)

	Female	Male	Total
Correctly recalled the company	56.9 %	43.1 %	100.0
Incorrectly recalled the company	52.4 %	47.6 %	100.0

 Row percentages are calculated by dividing each part of the row by the total of the row and multiplying by 100. For example, Female and correctly recalled = 66, which yields a row percentage of (66/116)*100 = 56.9%.

112)

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	Female	Male
Correctly recalled the company	60.0 %	55.6
Incorrectly recalled the company	40.0 %	44.4
Total	100.0 %	100.0

 Column percentages are calculated by dividing each part of the column by the total of the column and multiplying by 100. For example, Female and correctly recalled = 66, which yields a column percentage of (66/110)*100 = 60.0%.

113)

Credit Balance	LED	LCD
Under $200	(10/71)*100 = 14.1%	(16/71)*100 = 22.5%
$200—$800	(8/59)*100 = 13.6%	(12/59)*100 = 20.3%
Over $800	(16/74)*100 = 21.6%	(12/74)*100 = 16.2%

Row percentages are calculated by dividing each part of the row by the total of the row and multiplying by 100. Need to calculate the totals for each row (under $200 = 71; $200-$800 = 59; over $800 = 74). For example, credit balance under $200 and LCD TV = 16, which yields row percentage (16/71)*100 = 22.5%.

114)

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Credit Balance	LED	LCD	Plasma	Projection
Under $200	29.0%	40.0%	50.0%	10.0%
$200—$800	23.0%	30.0%	30.0%	30.0%
Over $800	47.0%	30.0%	20.0%	60.0%
Total	100.0%	100.0%	100.0%	100.0%

Column percentages calculated by dividing each part of the column by the total of the column and multiplying by 100. For example, credit balance under $200 and LCD TV = 16 yields row percentage (16/40)*100 =40.0%.

115)

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