

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

1) A frequency distribution is a grouping of quantitative data into overlapping classes showing the number of observations in each class. 1) _____

Answer: True False

2) A frequency table for qualitative data has class limits. 2) _____

Answer: True False

3) To summarize the gender of students attending a college, the number of classes in a frequency table depends on the number of students. 3) _____

Answer: True False

4) In frequency distributions, classes are mutually exclusive if each individual, object, or measurement is included in only one category. 4) _____

Answer: True False

5) In a bar chart, the horizontal axis is usually labeled with the values of a qualitative variable. 5) _____

Answer: True False

6) In a bar chart, the heights of the bars represent the frequencies in each class. 6) _____

Answer: True False

7) The midpoint of a class is halfway between the lower and upper limits. 7) _____

Answer: True False

8) A class interval can be determined by subtracting the lower limit of a class from the lower limit of the next higher class. 8) _____

Answer: True False

9) To convert a frequency distribution to a relative frequency distribution, divide each class frequency by the sum of the class frequencies. 9) _____

Answer: True False

10) To convert a frequency distribution to a relative frequency distribution, divide each class frequency by the number of classes. 10) _____

Answer: True False

11) A pie chart is similar to a relative frequency distribution. 11) _____

Answer: True False

- 20) When data are collected using a qualitative, nominal variable (e.g., male or female), what is true about a frequency table that summarizes the data? 20) _____
- A) The upper and lower class limits must be calculated.
 - B) The "2 to the k rule" can be applied.
 - C) The number of classes corresponds to the number of a variable's values.
 - D) Class midpoints can be computed.

Answer: C

- 21) A student was interested in the cigarette-smoking habits of college students and collected from an unbiased random sample of students. The data are summarized in the following table. 21) _____

Males	50
Females	75
Males who smoke	20
Males who do not smoke	30
Females who smoke	25
Females who do not smoke	50

What is wrong with this frequency table?

- A) The number of males does not equal the sum of males that smoke and do not smoke.
- B) There are too many classes.
- C) The classes are not mutually exclusive.
- D) Class limits cannot be computed.

Answer: C

- 22) A student was interested in the cigarette-smoking habits of college students and collected from an unbiased random sample of students. The data are summarized in the following table. 22) _____

Males who smoke	20
Males who do not smoke	30
Females who smoke	25
Females who do not smoke	50

What type of chart best represents the frequency table?

- A) Box plot
- B) Frequency polygon
- C) Bar chart
- D) Scatter plot

Answer: C

28) A group of 100 students were surveyed about their interest in a new Economics major. Interest was measured in terms of high, medium, or low. In the study, 30 students responded high interest, 50 students responded medium interest, and 20 students responded low interest. What is the best way to illustrate the relative frequency of student interest? 28) _____

- A) Use a box plot.
- B) Use a cumulative frequency polygon.
- C) Use a pie chart.
- D) Use a frequency table.

Answer: C

29) The monthly salaries of a sample of 100 employees were rounded to the nearest \$10. They ranged from a low of \$1,040 to a high of \$1,720. If we want to condense the data into seven classes, what is the most convenient class interval? 29) _____

- A) \$100
- B) \$50
- C) \$200
- D) \$150

Answer: A

30) A student was studying the political party preferences of a university's student population. The survey instrument asked students to identify themselves as a Democrat or a Republican. This question is flawed because 30) _____

- A) political preference is a continuous variable.
- B) the categories are not exhaustive.
- C) students generally don't know their political preferences.
- D) the categories are generally mutually exclusive.

Answer: B

31) A student was studying the political party preferences of a university's student population. The survey instrument asked students to identify their political preferences—for example, Democrat, Republican, Libertarian, or another party. The best way to illustrate the frequencies for each political preference is a 31) _____

- A) box plot.
- B) frequency polygon.
- C) bar chart.
- D) histogram.

Answer: C

32) A student was studying the political party preferences of a university's student population. The survey instrument asked students to identify their political preferences—for example, Democrat, Republican, Libertarian, or another party. The best way to illustrate the relative frequency distribution is a 32) _____

- A) bar chart.
- B) histogram.
- C) pie chart.
- D) frequency polygon.

Answer: C

33) What is the following table called?

33) _____

Ages	Number of Ages
20 up to 30	16
30 up to 40	25
40 up to 50	51
50 up to 60	80
60 up to 70	20
70 up to 80	8

A) Frequency distribution

B) Frequency polygon

C) Histogram

D) Cumulative frequency distribution

Answer: A

34) For the following distribution of heights, what are the limits for the class with the greatest frequency? 34) _____

Heights	60" up to 65"	65" up to 70"	70" up to 75"
Frequency	10	70	20

A) 65 and 69

B) 69.5 and 74.5

C) 65 and up to 70

D) 64 and up to 70

Answer: C

35) In a frequency distribution, the number of observations in a class is called the class 35) _____

A) midpoint.

B) frequency.

C) array.

D) interval.

Answer: B

36) Why are unequal class intervals sometimes used in a frequency distribution? 36) _____

A) To avoid the need for midpoints.

B) To avoid a large number of classes with very small frequencies.

C) For the sake of variety in presenting the data.

D) To make the class frequencies smaller.

Answer: B

- 37) The number of employees less than the upper limit of each class at Lloyd's Fast Food Emj 37) _____
is shown in the following table:

Ages	Cumulative Number
18 up to 23	6
23 up to 28	19
28 up to 33	52
33 up to 38	61
38 up to 43	65

What is it called?

- A) A histogram
B) A frequency polygon
C) A cumulative frequency distribution
D) A pie chart

Answer: C

- 38) Here is a sample distribution of hourly earnings in Paul's Cookie Factory: 38) _____

Hourly Earning	\$6 up to \$9	\$9 up to \$12	\$12 up to \$15
Frequency	16	42	10

The limits of the class with the smallest frequency are

- A) \$11.75 and \$14.25.
B) \$12.00 and up to \$15.00.
C) \$12.00 and up to \$14.00.
D) \$6.00 and \$9.00.

Answer: B

- 39) Refer to the following distribution of commissions: 39) _____

Monthly Commissions	Class Frequencies
\$600 up to \$800	3
800 up to 1,000	7
1,000 up to 1,200	11
1,200 up to 1,400	12
1,400 up to 1,600	40
1,600 up to 1,800	24
1,800 up to 2,000	9
2,000 up to 2,200	4

What is the relative frequency for salespeople who earn from \$1,600 up to \$1,800?

- A) 0.24
B) 0.02
C) 0.20
D) 0.024

Answer: C

40) Refer to the following distribution of commissions:

40) _____

Monthly Commissions	Class Frequencies
\$600 up to \$800	3
800 up to 1,000	7
1,000 up to 1,200	11
1,200 up to 1,400	12
1,400 up to 1,600	40
1,600 up to 1,800	24
1,800 up to 2,000	9
2,000 up to 2,200	4

To plot a cumulative frequency distribution, the first coordinate would be

A) $X = 0, Y = 600$.

B) $X = 3, Y = 600$.

C) $X = 500, Y = 3$.

D) $X = 600, Y = 0$.

Answer: D

41) Refer to the following distribution of commissions:

41) _____

Monthly Commissions	Class Frequencies
\$600 up to \$800	3
800 up to 1,000	7
1,000 up to 1,200	11
1,200 up to 1,400	12
1,400 up to 1,600	40
1,600 up to 1,800	24
1,800 up to 2,000	9
2,000 up to 2,200	4

What is the relative frequency of salespeople who earn \$1,600 or more?

A) 27.5%

B) 30.8%

C) 29.5%

D) 25.5%

Answer: B

44) Refer to the following wage breakdown for a garment factory:

44) _____

Hourly Wages	Number of employees
\$6 up to \$7	18
7 up to 10	36
10 up to 13	20
13 up to 16	6

What is the class interval for the preceding table of wages?

- A) \$3 B) \$2 C) \$4 D) \$5

Answer: A

45) Refer to the following wage breakdown for a garment factory:

45) _____

Hourly Wages	Number of employees
\$6 up to \$7	18
7 up to 10	36
10 up to 13	20
13 up to 16	6

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

- A) \$14.50 B) \$5.50 C) \$11.50 D) \$8.50

Answer: D

46) Refer to the following wage breakdown for a garment factory:

46) _____

Hourly Wages	Number of employees
\$6 up to \$7	18
7 up to 10	36
10 up to 13	20
13 up to 16	6

What are the class limits for the class with the smallest frequency?

- A) 13 and up to 16 B) 4 and up to 7
C) 12.5 and 15.5 D) 3.5 and 6.5

Answer: A

47) Refer to the following distribution of ages:

47) _____

Ages	Frequency
40 up to 50	10
50 up to 60	28
60 up to 70	12

For this distribution of ages, what is the relative class frequency for the lowest class?

- A) 0.20 B) 0.10 C) 0.18 D) 0.50

Answer: A

48) Refer to the following distribution of ages:

48) _____

Ages	Frequency
40 up to 50	10
50 up to 60	28
60 up to 70	12

What is the class interval?

- A) 10.5 B) 11 C) 9 D) 10

Answer: D

49) Refer to the following distribution of ages:

49) _____

Ages	Frequency
40 up to 50	10
50 up to 60	28
60 up to 70	12

What is the class midpoint of the highest class?

- A) 65 B) 64 C) 54 D) 55

Answer: A

50) Refer to the following information from a frequency distribution for heights of college women recorded to the nearest inch: the first two class midpoints are 62.5" and 65.5".

50) _____

What is the class interval?

- A) 1" B) 2" C) 2.5" D) 3"

Answer: D

55) Refer to the following distribution:

55) _____

Cost of Textbooks	Frequency
\$25 up to 35	2
35 up to 45	5
45 up to 55	7
55 up to 65	20
65 up to 75	16

What are the class limits for the class with the highest frequency?

- A) 55 up to 64 B) 54 up to 64 C) 55 up to 64.5 D) 55 up to 65

Answer: D

56) Refer to the following frequency distribution of days absent during a calendar year by employees of a manufacturing company: 56) _____

Days Absent	Number of employees
0 up to 3	60
3 up to 6	31
6 up to 9	14
9 up to 12	6
12 up to 15	2

How many employees were absent for 3 up to 6 days?

- A) 29 B) 2 C) 31 D) 14

Answer: C

57) Refer to the following frequency distribution of days absent during a calendar year by employees of a manufacturing company: 57) _____

Days Absent	Number of employees
0 up to 3	60
3 up to 6	31
6 up to 9	14
9 up to 12	6
12 up to 15	2

How many employees were absent fewer than six days?

- A) 60 B) 46 C) 91 D) 31

Answer: C

58) Refer to the following frequency distribution of days absent during a calendar year by employees of a manufacturing company: 58) _____

Days Absent	Number of employees
0 up to 3	60
3 up to 6	31
6 up to 9	14
9 up to 12	6
12 up to 15	2

How many employees were absent six or more days?

- A) 8 B) 31 C) 22 D) 4

Answer: C

59) Refer to the following frequency distribution of days absent during a calendar year by employees of a manufacturing company: 59) _____

Days Absent	Number of employees
0 up to 3	60
3 up to 6	31
6 up to 9	14
9 up to 12	6
12 up to 15	2

How many employees were absent for 6 up to 12 days?

- A) 12 B) 20 C) 8 D) 17

Answer: B

60) Refer to the following breakdown of responses to a survey of room service in a hotel: 60) _____

Response	Frequency
Not satisfied	20
Satisfied	40
Highly satisfied	60

What is the class interval for this frequency table?

- A) 10 B) 20 C) 40 D) None apply

Answer: D

61) Refer to the following breakdown of responses to a survey of room service in a hotel: 61) _____

Response	Frequency
Not satisfied	20
Satisfied	40
Highly satisfied	60

What is the class with the greatest frequency?

- A) Satisfied
- B) Not satisfied
- C) Highly satisfied
- D) None apply

Answer: C

62) Refer to the following breakdown of responses to a survey of room service in a hotel: 62) _____

Response	Frequency
Not satisfied	20
Satisfied	40
Highly satisfied	60

What percentage of the responses indicated that customers were satisfied?

- A) 33%
- B) 40%
- C) 100%
- D) 50%

Answer: A

63) Refer to the following breakdown of responses to a survey of room service in a hotel: 63) _____

Response	Frequency
Not satisfied	20
Satisfied	40
Highly satisfied	60

What type of chart should be used to describe the frequency table?

- A) A bar chart
- B) A frequency polygon
- C) A histogram
- D) A pie chart

Answer: A

64) Refer to the following breakdown of responses to a survey of room service in a hotel: 64) _____

Response	Frequency
Not satisfied	20
Satisfied	40
Highly satisfied	60

What type of chart should be used to show relative class frequencies?

- A) A histogram
- B) A bar chart
- C) A pie chart
- D) A frequency polygon

Answer: C

65) Refer to the following breakdown of responses to a survey of "Are you concerned about b 65) _____
tracked while connected to the Internet?"

Response	Frequency
Very concerned	140
Somewhat concerned	40
No concern	20

What is the class interval for the preceding frequency table?

- A) 40
- B) 20
- C) 10
- D) None apply

Answer: D

66) Refer to the following breakdown of responses to a survey of "Are you concerned about b 66) _____
tracked while connected to the Internet?"

Response	Frequency
Very concerned	140
Somewhat concerned	40
No concern	20

What is the class with the greatest frequency?

- A) No concern
- B) Very concerned
- C) Somewhat concerned
- D) None apply

Answer: B

67) Refer to the following breakdown of responses to a survey of "Are you concerned about b 67) _____ tracked while connected to the Internet?"

Response	Frequency
Very concerned	140
Somewhat concerned	40
No concern	20

What percentage of the responses indicated that users were somewhat concerned?

- A) 70% B) 40% C) 100% D) 20%

Answer: D

68) Refer to the following breakdown of responses to a survey of "Are you concerned about b 68) _____ tracked while connected to the Internet?"

Response	Frequency
Very concerned	140
Somewhat concerned	40
No concern	20

What type of chart should be used to describe the frequency table?

- A) A histogram B) A bar chart
C) A pie chart D) A frequency polygon

Answer: B

69) Refer to the following breakdown of responses to a survey of "Are you concerned about b 69) _____ tracked while connected to the Internet?"

Response	Frequency
Very concerned	140
Somewhat concerned	40
No concern	20

What type of chart should be used to show relative class frequencies?

- A) A histogram B) A pie chart
C) A frequency polygon D) A bar chart

Answer: B

70) Refer to the following breakdown of responses to a survey of "How confident are you that you have saved enough to retire?" 70) _____

Response	Frequency
Very confident	63
Somewhat confident	135
Not very confident	99
Don't know	3

What is the class interval for the preceding frequency table?

- A) 40 B) 20 C) 10 D) None apply

Answer: D

71) Refer to the following breakdown of responses to a survey of "How confident are you that you have saved enough to retire?" 71) _____

Response	Frequency
Very confident	63
Somewhat confident	135
Not very confident	99
Don't know	3

What is the class with the greatest frequency?

- A) Very confident B) Not very confident
C) Somewhat confident D) Don't know

Answer: C

72) Refer to the following breakdown of responses to a survey of "How confident are you that you have saved enough to retire?" 72) _____

Response	Frequency
Very confident	63
Somewhat confident	135
Not very confident	99
Don't know	3

What percentage of the responses indicated that users were very confident?

- A) 45% B) 63% C) 21% D) 33%

Answer: C

73) Refer to the following breakdown of responses to a survey of "How confident are you that you have saved enough to retire?" 73) _____

Response	Frequency
Very confident	63
Somewhat confident	135
Not very confident	99
Don't know	3

What type of chart should be used to describe the frequency table?

- A) A histogram
- B) A frequency polygon
- C) A pie chart
- D) A bar chart

Answer: D

74) Refer to the following breakdown of responses to a survey of "How confident are you that you have saved enough to retire?" 74) _____

Response	Frequency
Very confident	63
Somewhat confident	135
Not very confident	99
Don't know	3

What type of chart should be used to show relative class frequencies?

- A) A pie chart
- B) A histogram
- C) A frequency polygon
- D) A bar chart

Answer: A

75) A pie chart shows the 75) _____

- A) frequencies of a ratio variable.
- B) frequencies of a nominal variable.
- C) relative frequencies of a quantitative variable.
- D) relative frequencies of a qualitative variable.

Answer: D

76) A table summarizing a set of data showing the fraction of the total number of items in several classes is a 76) _____

- A) frequency table.
- B) normal frequency table.
- C) relative frequency table.
- D) cumulative frequency table.

Answer: C

77) In order to convert class frequency to relative class frequency, we

77) _____

- A) divide the frequency of the class by the midpoint.
- B) divide the frequency of the class by the sample size.
- C) divide the sample size by the frequency of the class.
- D) divide the midpoint of the class by the sample size.

Answer: B

78) In constructing a frequency distribution, the approximate class interval is computed as

78) _____

- A) $(\text{minimum value} - \text{maximum value})/(\text{sample size})$.
- B) $(\text{maximum value} - \text{minimum value})/(\text{number of classes})$.
- C) $(\text{maximum value})/(\text{number of classes} - \text{sample size})$.
- D) $(\text{maximum value} - \text{minimum value})/(\text{sample size})$.

Answer: B