

Chapter 2

Test Bank

Type: true-false

Title: Chapter 02 Question 01

1. True or False: Qualitative data can be in the form of numbers

Feedback: Page reference: p3, 4, 5

*a) True

b) False

Type: true-false

Title: Chapter 02 Question 02

2. True or False: Data based on rankings are qualitative

Feedback: Page reference: p3, 4, 5

*a) True

b) False

Type: true-false

Title: Chapter 02 Question 03

3. True or False: Nominal scales are qualitative measurements that use ranks to represent categories.

Feedback: Page reference: p6

a) True

*b) False

Type: true-false

Title: Chapter 02 Question 04

4. True or false: Nominal scales are inherently quantitative

Feedback: Page reference: p4, 5, 6

a) True

*b) False

Type: true-false

Title: Chapter 02 Question 05

5. True or False: Ordinal scales are **not** a type of qualitative data. Rather, they are quantitative data.

Feedback: Page reference: p7, 8

a) True

*b) False

Type: true-false

Title: Chapter 02 Question 06

6. True or False: Placement in a race is on an ordinal scale

Feedback: Page reference: p7, 8

*a) True

b) False

Type: true-false

Title: Chapter 02 Question 07

7. True or False: Unlike interval scales, ratio scales have a true and meaningful zero point

Feedback: Page reference: p10

*a) True

b) False

Type: true-false

Title: Chapter 02 Question 08

8. True or false: Just because you have numbers in a dataset to calculate a mean or median, it doesn't mean that the result is meaningful.

Feedback: Page reference: p8, 9

*a) True

b) False

Type: true-false

Title: Chapter 02 Question 09

9. True or False: A frequency distribution is a table that shows the frequency of possible measurements that could have been observed

Feedback: Page reference: p18

a) True

*b) False

Type: true-false

Title: Chapter 02 Question 10

10. True or False: When counting cumulative frequency, the total frequency will only increase as you move up in an ordered dataset.

Feedback: Page reference: p21

*a) True

b) False

Type: true-false

Title: Chapter 02 Question 11

11. True or False: In a grouped frequency distribution, the groups are formed based on the total number of observations.

Feedback: Page reference: p27

a) True

*b) False

Type: true-false

Title: Chapter 02 Question 12

12. True or False: Grouped frequency distributions can be presented in different ways, such as to show relative frequencies and cumulative relative frequencies.

Feedback: Page reference: p31, 32

*a) True

b) False

Type: true-false

Title: Chapter 02 Question 13

13. True or False: When creating a grouped frequency distribution, it is best to start with 2 groups and then work your way up until a desired amount is reached.

Feedback: Page reference: E, p29

a) True

*b) False

Type: true-false

Title: Chapter 02 Question 14

14. True or False: Relative frequencies are generally displayed as percentages or proportions, instead of actual counts.

Feedback: Page reference: p20

*a) True

b) False

Type: true-false

Title: Chapter 02 Question 15

15. True or False: Cumulative relative frequencies are also known as percentile rank

Feedback: Page reference: p23, 24

*a) True

b) False

Type: true-false

Title: Chapter 02 Question 16

16. True or False: If a certain datum or observation is associated with a cumulative relative frequency of 59%, that means that 59% of the observations were ranked below that datum or observation.

Feedback: Page reference: p24

*a) True

b) False

Type: true-false

Title: Chapter 02 Question 17

17. True or False: Asking participants of a survey to pick their favorite color would be on an ordinal scale

Feedback: Page reference: p6, 7, 8

a) True

*b) False

Type: true-false

Title: Chapter 02 Question 18

18. True or False: Interval scales and ratio scales are not that different. Interval scales contain a true 0 point but ratio scales don't.

Feedback: Page reference: p10, 11

a) True

*b) False

Type: true-false

Title: Chapter 02 Question 19

19. True or False: In an ungrouped frequency distribution, you are able to extract the entire dataset precisely to have each observation available.

Feedback: Page reference: p17, 18

*a) True

b) False

Type: true-false

Title: Chapter 02 Question 20

20. True or false: Reaction time measured in milliseconds is on an interval scale because there are equal intervals between each millisecond

Feedback: Page reference: p10

a) True

*b) False

Type: multiple choice question

Title: Chapter 02 Question 01

1. Which of the following scenarios is a reason to use grouped frequency distributions over ungrouped frequency distributions?

Feedback: Page reference: p27

- a. small datasets with low variability
- b. datasets on a nominal scale
- c. datasets that contain categorical variables such as gender or color
- *d. large datasets with high variability

Type: multiple choice question

Title: Chapter 02 Question 02

2. Which of the following accurately describes how 0's are represented in different scales?

Feedback: Page reference: p10

- a. They can be arbitrary for nominal scales, and do not reflect an absence of what is being measured on a ratio scale.
- b. They represent an absence of what is being measured on all measurement scales regardless of what kind of scale the data are on.
- c. They represent the absence of that which is being measured for interval scales only
- *d. They represent the absence of that which is being measured for ratio scales only.

Type: multiple choice question

Title: Chapter 02 Question 03

3. Which of the following does **not** describe ordinal scale?

Feedback: Page reference: p7, 8

- a. Class rank in school
- b. Letter grades on a test
- *c. Percentage of points earned on a test
- d. All of the above are ordinal scales.

Type: multiple choice question

Title: Chapter 02 Question 04

4. According to S.S. Stevens, what are the two basic characteristics of an object or event that is measurable?

Feedback: Page reference: p3, 4

- a. Quality and interest
- *b. Quality and quantity
- c. Who and how many
- d. When and where

Type: multiple choice question

Title: Chapter 02 Question 05

5.

Degrees F	<i>crf</i>
90-99	100
80-89	89
70-79	81
60-69	40
50-59	21
40-49	7
30-39	3

What percentage of days were hotter than 79 degrees Fahrenheit?

Feedback: Page reference: p22, 23

- a. 81%
- b. 89%

- *c. 19%
d. 100%

Type: multiple choice question

Title: Chapter 02 Question 06

6.

Degrees F	<i>crf</i>
90-99	100
80-89	89
70-79	81
60-69	40
50-59	21
40-49	7
30-39	3

How many days were 59 degrees or less?

Feedback: Page reference: p22, 23

- a. 21
b. 7
c. 3
*d. Insufficient information from the data

Type: multiple choice question

Title: Chapter 02 Question 07

7.

Degrees F	<i>crf</i>
90-99	100
80-89	89
70-79	81
60-69	40
50-59	21
40-49	7
30-39	3

The most common range of temperature for the recorded days in this dataset was which range?

- *a. 70 – 79
b. 60 – 69
c. 90 – 99
d. 80 – 89

Type: multiple choice question

Title: Chapter 02 Question 08

8.

Degrees F	<i>crf</i>
90-99	100
80-89	89
70-79	81
60-69	40

50-59	21
40-49	7
30-39	3

What percentage of days had temperatures between 40 and 69 degrees Fahrenheit?

Feedback: Page reference: p22, 23

- a. 61%
- b. 28%
- *c. 37%
- d. Insufficient information from the data

Type: multiple choice question

Title: Chapter 02 Question 09

9. What unique feature about interval scales separates it from ordinal scales?

Feedback: Page reference: p8, 9

- *a. equal distance between any two adjacent points on the scale
- b. a true 0 that represents absence
- c. rank ordered data
- d. All of the above.

The following data set presents the number of laptops individuals own. Questions 10 through 13 will use the data below:

Number of laptops	<i>f</i>
0	7
1	141
2	81
3	5
4	3
5	7

Type: multiple choice question

Title: Chapter 02 Question 10

10. How many individuals had either 1 or 3 laptops?

Feedback: Page reference: p18, 19

- *a. 146
- b. 141
- c. 227
- d. 86

Type: multiple choice question

Title: Chapter 02 Question 11

11. In this sample, the fewest people had how many laptops?

Feedback: Page reference: p18, 19

- a. 1
- b. 2
- c. 3
- *d. 4

Type: multiple choice question

Title: Chapter 02 Question 12

12. This distribution is _____, and is showing the _____.

Feedback: Page reference: p18, 19

- a. grouped; relative frequency
- *b. ungrouped; frequency
- c. ungrouped; relatively frequency;
- d. ungrouped; percentile rank.

Type: multiple choice question

Title: Chapter 02 Question 13

13. What is the cumulative relative frequency for owning 3 laptops?

Feedback: Page reference: p22, 23

- *a. 95.9%
- b. 2%
- c. 93.9%
- d. insufficient information.

Type: multiple choice question

Title: Chapter 02 Question 14

14. Interval and ratio scales are best described as which of the following?

Feedback: Page reference: p10

- a. descriptive
- *b. quantitative
- c. qualitative
- d. categorical

Type: multiple choice question

Title: Chapter 02 Question 15

15. If your score on a test had a cumulative relative frequency of 55%, what does that mean?

Feedback: Page reference: p22, 23

- a. you are in the 45th percentile
- b. 55% of individuals in the sample scored higher than you
- *c. 55% of individuals in the sample scored lower than you
- d. You scored 55% of the total points correct.

Type: multiple choice question

Title: Chapter 02 Question 16

16. Qualitative data is generally concerned with _____ whereas quantitative data is concerned with _____.

Feedback: Page reference: p3, 4

- a. frequency; categorization.
- *b. categorizing; counting
- c. How and when; who and where
- d. observing; counting

Type: multiple choice question

Title: Chapter 02 Question 17

17. Interval scales are inherently...

Feedback: Page reference: p5, 6

- a. qualitative.
- *b. quantitative.
- c. categories.
- d. None of the above.

Type: multiple choice question

Title: Chapter 02 Question 18

18. In a grouped frequency distribution, which one of the following is true?

Feedback: Page reference: p27, 28

- *a. you no longer know what the exact data points in the dataset were
- b. you are only interested in percentile rank and not frequency, because the individual data points are not used
- c. it makes small datasets more easily read
- d. It is only a good idea when the difference between the largest and smallest observation is greater than 100.

Type: multiple choice question

Title: Chapter 02 Question 19

19. As a general rule of thumb, how many groups should you start with when creating a grouped frequency distribution?

Feedback: Page reference: p29

- a. 2
- b. 5
- *c. 10
- d. The range divided by 5

Type: multiple choice question

Title: Chapter 02 Question 20

20. What is the midpoint for each group in a grouped frequency distribution?

Feedback: Page reference: p32

- *a. $(UL - LL)/2 + LL$
- b. $UL - LL/2 + LL$
- c. $(UL - LL)/2 + UL$
- d. $UL - LL/2$

Type: multiple choice question

Title: Chapter 02 Question 21

21. Which of the following accurately describes interval and ratio scales?

Feedback: Page reference: p5, 6, 7, 8

- *a. They have all the qualities that ordinal scales have
- b. They do not have qualities that ordinal scales have
- c. They are the same, except that interval scales have a true 0 point
- d. a and c only

Type: multiple choice question

Title: Chapter 02 Question 22

22. A researcher is studying the life expectancy of grizzly bears. During her research, she finds that the grizzly bears that inhabit the area primarily find their food from four locations. She reorients her research and begins to examine what types of food is available is at each location and how common each food type is. The data is on what kind of scale?

Feedback: Page reference: p5, 6, 7

- *a. Nominal
- b. Ordinal
- c. Ratio
- d. Interval

Type: multiple choice question

Title: Chapter 02 Question 23

23. A student researcher is asking participants to report the number of hours they studied for a recent exam and the letter grade they received. These are variables on a _____ and _____ respectively.

Feedback: Page reference: p5, 6, 7, 8, 9

- a. ratio; ordinal
- b. ratio; interval
- c. interval; nominal
- *d. interval; ordinal

Type: multiple choice question

Title: Chapter 02 Question 24

24. A dataset that is comprised of the value of homes in a neighborhood is on a _____ scale

Feedback: Page reference: p10, 11

- a. interval
- *b. ratio
- c. nominal
- d. ordinal

Type: multiple choice question

Title: Chapter 02 Question 25

25. Grouped tables for datasets offer which advantage over an ungrouped frequency table?

Feedback: Page reference: p27

- *a. it can be better organize large datasets with lots of variability
- b. It can be used for all measurement scales whereas ungrouped frequency tables cannot
- c. It shows all values of the dataset whereas ungrouped frequency tables do not.
- d. All of the above

Type: essay/short answer question

Title: Chapter 02 Question 01

1. There are two types of data: qualitative and quantitative. Explain what they are and give an example of each

Feedback: Page reference: p3

Quantitative data refers to measurements that tell us how much or many of something there are. Quantitative data are generally in the form of numbers. An example of quantitative data is heart rate.

Qualitative data record what category an event, observation, object, or measurement falls in. Qualitative data can be in both the format of numbers and/or words. An example of qualitative data is political party affiliation.

Type: essay/short answer question

Title: Chapter 02 Question 02

2. identify the 4 types of measurement scales, and provide an example of each

Feedback: Page reference: p5, 6, 7, 8, 9, 10, 11

Nominal scale: this is categorical data that can be represented by numbers, but the numbers are generally arbitrary. Nominal data can be shown by frequencies. An example would be species of animals

Ordinal scale: this is also qualitative data, but the numbers can be rank ordered. An example of this would be placement in a race.

Interval scale: this is a form of quantitative data. It is rank ordered, but now adjacent data points now all have exactly the same interval. An example of an interval scale would be temperature in Fahrenheit.

Ratio scale: ratio scale shares qualities of interval scales. The main difference is that ratio scales have a true 0 point that represents an absence of that which is being measured. An example of a ratio scale is number of points scored on a test.

Type: essay/short answer question

Title: Chapter 02 Question 03

3. Identify and briefly describe the four ways that data can be organized in frequency tables

Feedback: **Page reference:** p18

1. frequencies: the number of occurrences in each category or observation
2. relative frequencies: The proportion of the data that has a certain value or observation in an ordered dataset
3. cumulative frequencies: the total number of observations that has a certain observation or smaller
4. cumulative relative frequencies: the proportion of observations that has a certain data value and below in an ordered dataset

Type: essay/short answer question

Title: Chapter 02 Question 04

4. Below are data from an eating contest. Contestants tried to eat as many hot dogs as they can. Use the data to answer the following questions.

Hotdogs	f
12	1
11	3
10	6
9	12
8	33
7	29

The winner of the contest ate how many hot dogs?

Feedback: **Page reference:** p17

12

Type: essay/short answer question

Title: Chapter 02 Question 05

5. Below are data from an eating contest. Contestants tried to eat as many hot dogs as they can. Use the data to answer the following questions.

Hotdogs	f
12	1
11	3
10	6
9	12
8	33
7	29

Create a new column of the table and calculate the cumulative frequencies

Feedback: **Page reference:** p21, 22

Hotdogs	f	cf
12	1	84
11	3	83
10	6	80
9	12	74
8	33	62
7	29	29

Type: essay/short answer question**Title:** Chapter 02 Question 06

6. Below are data from an eating contest. Contestants tried to eat as many hot dogs as they can. Use the data to answer the following questions.

Hotdogs	<i>f</i>
12	1
11	3
10	6
9	12
8	33
7	29

What kind of measurement scale is this data on?

Feedback: Page reference: p10, 11

Ratio

Type: essay/short answer question**Title:** Chapter 02 Question 07

7. Weddings are becoming increasingly expensive for couples. Below are data showing how much newly weds spent on their weddings. Use it to answer the following questions.

Cost	<i>f</i>
50,000	2
48,000	1
30,000	4
25,000	9
22,000	22
19,000	37
14,000	21
12,000	14
11,000	21
9,000	35
8,000	48
5,000	17

The most frequently observed cost in this dataset is how much for a wedding?

Feedback: Page reference: p17

8,000

Type: essay/short answer question**Title:** Chapter 02 Question 08

8. Weddings are becoming increasingly expensive for couples. Below are data showing how much newly weds spent on their weddings. Use it to answer the following questions.

Cost	<i>f</i>
50,000	2

48,000	1
30,000	4
25,000	9
22,000	22
19,000	37
14,000	21
12,000	14
11,000	21
9,000	35
8,000	48
5,000	17

Create a new column of data and calculate the relative frequency

Feedback: Page reference: p 20, 21

Cost	f	rf
50,000	2	0.87%
48,000	1	0.43%
30,000	4	1.73%
25,000	9	3.90%
22,000	22	9.52%
19,000	37	16.02%
14,000	21	9.09%
12,000	14	6.06%
11,000	21	9.09%
9,000	35	15.15%
8,000	48	20.78%
5,000	17	7.36%