

MODULE 2: MEASUREMENT SCALES

COMPLETION

(1) Indicate the first letter (N, O, I, R) of the *highest* possible scale for each of the following measures:

<u>Measure</u>	<u>Highest Scale</u>
(a) Brand of athletic shoe	_____
(b) Typing speed	_____
(c) Birth order within one's family	_____
(d) Handedness (left, right)	_____
(e) Score on a statistics course quiz	_____

(2) Indicate the first letter (N, O, I, R) of the *highest* possible scale for each of the following measures:

(a) Hair color	_____
(b) How tired you feel	_____
(c) Number of dates in the past month	_____
(d) Writing ability	_____
(e) Leg length	_____

(3) Indicate the first letter (N, O, I, R) of the *highest* possible scale for each of the following measures:

<u>Measure</u>	<u>Highest Scale</u>
(a) Primary ethnic identity	_____
(b) Miles to the nearest shopping mall	_____
(c) Where your name falls alphabetically	_____

(d) How high you can climb _____

(e) Age at which you took your first step _____

(4) Indicate the first letter (N, O, I, R) of the *highest* possible scale for each of the following measures:

<u>Measure</u>	<u>Highest Scale</u>
(a) Color of highlighter you use	_____
(b) Where the word <i>aardvark</i> falls in a dictionary	_____
(c) Species of birds at a feeder	_____
(d) Musical ability	_____
(e) Soccer score	_____

(5) Are the following variables discrete or continuous? Mark “D” or “C” to indicate your answer:

<u>Measure</u>	<u>Variable Type</u>
(a) Typing speed	_____
(b) Shoe size	_____
(c) How tired you feel	_____
(d) Number of dates in the past month	_____
(e) Writing ability	_____

(6) Are the following variables discrete or continuous? Mark “D” or “C” to indicate your answer:

<u>Measure</u>	<u>Variable Type</u>
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- (a) How high you can climb _____
- (b) How high you can climb _____
- (c) Age at which you took your first step _____
- (d) Musical ability _____
- (e) Soccer score _____

(7) What are the real limits of the following scores?

	Size of Each	
<u>Score</u>	<u>Scale Interval</u>	<u>Real Limits</u>
(a) Weight = 160	10 pounds	_____ and _____
(b) Introversion = 75	5 points	_____ and _____
(c) Temperature = 45°	1 degree	_____ and _____
(d) Hours slept = 6½	one-half hour	_____ and _____
(e) Calories = 1,600	50 calories	_____ and _____

(8) What are the real limits of the following scores?

	Size of Each	
<u>Score</u>	<u>Scale Interval</u>	<u>Real Limits</u>
(a) Income = \$45,000	\$5,000	_____ and _____
(b) Typing speed = 62	one word	_____ and _____
(c) Leg length = 33.0	one-half inch	_____ and _____

(d) Sugar = 1.00 cup quarter cup _____ and _____

(e) Anger = 70 10 points _____ and _____

TRUE/FALSE

1. An ordinal scale is the lowest measurement scale.
2. Most variables in education and psychology are measured on an interval scale.
3. Scores on a math achievement test are ratio scaled.
4. Military ranks form an ordinal scale.
5. Interval scales have equal distance between adjacent scores.
6. Time is measured on an interval scale.
7. The number of blue ribbons you win in a competition is measured discretely.
8. The number of feet you jump in a competition is measured continuously.
9. If an intelligence test is measured in whole points, the real limits for a score of 115 are 114 and 116.
10. If a drug is measured in one-tenth grams, the real limits for a dose of 2.5 g are 2.45 and 2.55.

MULTIPLE-CHOICE

1. Four kinds of carbonated soft drinks form what type of measurement scale?
 - A. Nominal
 - B. Ordinal
 - C. Interval
 - D. Ratio
2. The number of miles you walk on a hike forms what type of measurement scale?
 - A. Nominal
 - B. Ordinal
 - C. Interval
 - D. Ratio
3. Which one of the following is the best example of ordinal data?
 - A. Scores on a test of self-esteem
 - B. Time in minutes
 - C. Eye color
 - D. Rank in graduating class

4. Which one of the following is the best example of ratio data?

- A. Age
- B. Gender
- C. Rank on a civil service test
- D. Level of intelligence

5. The statement that a person who scores 120 has twice as much of the trait being measured as someone who scores 60 is appropriate for

- A. a variable measured on an interval scale.
- B. a variable measured on a ratio scale.
- C. any continuous variable.
- D. any test whose scores are normally distributed.

6. When is it appropriate to say that one person has only half as much of a trait as another person has? It is appropriate when that trait is measured on at least a/an _____ level scale.

- A. nominal
- B. ordinal
- C. interval
- D. ratio

7. Which one of these is a continuous measure?

- A. How many blue ribbons a contestants won
- B. How many pictures are hung on a wall
- C. How many miles to the nearest shopping mall
- D. How many mistakes you made on a homework assignment

8. Which of these is a discrete measure?

- A. How many points you earn on a test
- B. How many inches you grew in a year
- C. How many terms papers are due this semester
- D. How many hours you study for an exam

9. Examine the scores below:

95, 94, 92, 92, 92, 90, 89, 88, 88, 86, 64, 50

What is the shape of this distribution of scores?

- A. Negatively skewed, platykurtic.
- B. Positively skewed, platykurtic.

- C. Negatively skewed, leptokurtic.
- D. Symmetric.

10. Examine the scores below:

50, 64, 86, 88, 89, 90, 92, 92, 92, 95

What is the shape of this distribution of scores?

- A. Negatively skewed, platykurtic.
- B. Positively skewed, platykurtic.
- C. Negatively curved, leptokurtic.
- D. Symmetric.

11. A bimodal distribution, most often, indicates that

- A. each subject scored both high and low on whatever is being measured.
- B. there is a subset of high-scoring subjects and a subset of low-scoring subjects in the distribution.
- C. the majority of the subjects scored close to average.
- D. the person who measured the subjects made an error.

12. A scores distribution is symmetric and concentrated in the center, with very few scores in either tail. The distribution is

- A. platykurtic
- B. leptokurtic
- C. positively skewed
- D. negatively skewed

13. Which of these scales has a point at which it is possible for there to be no amount?

- A. nominal
- B. ordinal
- C. interval
- D. ratio

14. Distance run is an example of what level of measurement?

- A. nominal
- B. ordinal
- C. interval
- D. ratio

15. If the members of your class line up by height, what level of measurement has been imposed on the class members' height?

- A. nominal
- B. ordinal
- C. interval
- D. ratio

16. If a distribution is platykurtic, you would expect the scores to be

- A. mostly low
- B. mostly high
- C. spread more or less evenly across the range of scores
- D. lumped together at one score location

17. A continuously scored variable is one that

- A. can take any value between whole numbers
- B. goes on and on, without ending
- C. has an absolute value point
- D. is nominally scored

18. If scores are reported to the nearest 10 points (10, 20, 30, etc.), what are the real limits for a score of 60?

- A. 50 and 70
- B. 55 and 65
- C. 59.5 and 60.5
- D. 59 and 61

19. A single responses on a Likert scale (for example: strongly agree, agree, neutral disagree, strongly disagree) embody what level of measurement?

- A. nominal
- B. ordinal
- C. interval
- D. ratio

20. It is not possible to report the average score for data measured on what type of scale?

- A. nominal
- B. ordinal
- C. interval
- D. ratio