

AS1 (Assignment 1): Unit 1

Introduction to Terminology, Scales of Measurement, Notation and Basic Computation

1. A researcher investigates the effects of amphetamine on memory. The researcher selects a random sample of 50 undergraduate students from a major New Jersey University. Half (25) of the students selected receive amphetamine while studying a word list and half (25) of the students receive a placebo. For this study
 - a. Identify the population:_____
 - b. Identify the sample:_____
2. Define the terms:
 - a. Population_____
 - b. Sample_____
 - c. Parameter_____
 - d. Statistic_____
3. Name 3 descriptive statistics methods
 - 1) _____
 - 2) _____
 - 3) _____

Please place a T if the statement is true and an F if the statement is false in the space provided.

- _____4. A researcher calculates a mean from a population. Her mean is an example of a parameter.
- _____5. A researcher calculates a mean from a sample set of data. His mean is a statistic.
- _____6. The entire group of alcoholics in the state of NJ is an example of a population.
- _____7. A researcher who selects a sample from a population should expect no difference between the sample mean statistic and the true population parameter.
- _____8. The participants in a research study are classified as high, medium, or low in self-esteem. This classification involves measurement on an ordinal scale.
- _____9. A continuous variable must be measured on a nominal or an ordinal scale.
- _____10. Students in an introductory art class are classified as art majors and non-art majors. This is an example of measurement on an ordinal scale.

- _____ 11. Men's shirt sizes are classified as small, medium, large, and extra-large. This is an example of measurement on an interval scale.
- _____ 12. A researcher records the number of errors a rat makes running a maze. This is an example of measurement on a ratio scale.
- _____ 13. To determine how much difference there is between two individuals, you must use either a nominal or interval scale of measurement.
- _____ 14. If a researcher measures two individuals on a nominal scale, it is possible to determine which individual has the smaller score.
- _____ 15. Recording the number of students who are absent each day at a high school would be an example of measuring a continuous variable.
- _____ 16. A track coach records how much time each runner takes to complete the 100-yard dash. This is an example of measuring a discrete variable.
- _____ 17. Gender is a discrete variable while age is a continuous variable.
- _____ 18. A data set is described as consisting of $n = 15$ scores. Based on the notation being used, the data set is a population.
- _____ 19. To compute $(\sum X)^2$, you have to remember to first square all of the scores.
- _____ 20. For the following scores, 1, 3, 5, $\sum X^2 = 35$.
- _____ 21. For the following scores, 4, 4, 2, 0, $(\sum X)^2 = 36$.
22. Statistical techniques are classified into two major categories: Name the categories and differentiate one major difference between them:

23. You (1) select 30 people from a population, (2) measure the IQ of those 30 people, and (3) calculate a mean statistic = 110. What should you expect as far as the mean parameter? That is, would you expect the corresponding mean parameter to also be 110?

24. Calculate each value requested for the following set of scores. Scores: 1, 7, 6, 4, 3, 0, 0, 1

$$N = \underline{\hspace{2cm}} \quad \Sigma X = \underline{\hspace{2cm}} \quad \Sigma X^2 = \underline{\hspace{2cm}} \quad (\Sigma X)^2 = \underline{\hspace{2cm}}$$

25. For the following set of scores, find the value of each expression: 10, 11, 10, 9, 7

$$\Sigma X = \underline{\hspace{2cm}}$$

$$\Sigma X^2 = \underline{\hspace{2cm}}$$

$$(\Sigma X)^2 = \underline{\hspace{2cm}}$$

26. For the following set of scores, find the value of each expression

X

4

0

-3

a. $\Sigma X = \underline{\hspace{2cm}}$

b. $\Sigma X^2 = \underline{\hspace{2cm}}$

c. $(\Sigma X)^2 = \underline{\hspace{2cm}}$

27. For the following set of scores, find the value of each expression:

X

6

-2

3

-1

n=

$\Sigma X = \underline{\hspace{2cm}}$

$\Sigma X^2 = \underline{\hspace{2cm}}$

$(\Sigma X)^2 = \underline{\hspace{2cm}}$

28. Two scores, X and Y, are recorded for each of $n = 4$ subjects. For these scores, find the value of each expression.

Subject		X	Y
A	4	3	
B	0	7	
C	-1	5	
D	3	2	

$$\Sigma X = \underline{\hspace{2cm}}$$

$$\Sigma Y = \underline{\hspace{2cm}}$$

29. For each set of scores at the right, find the value of each expression.

 x
2
4
0
-2

$$n = \underline{\hspace{2cm}}$$

$$\Sigma X = \underline{\hspace{2cm}}$$

$$\Sigma X^2 = \underline{\hspace{2cm}}$$

$$(\Sigma X)^2 = \underline{\hspace{2cm}}$$