

1.E: Introduction (Exercises)

1. In your own words, describe why we study statistics.

Answer:

Your answer could take many forms but should include information about objectively interpreting information and/or communicating results and research conclusions

2. For each of the following, determine if the variable is continuous or discrete:

- a. Time taken to read a book chapter
- b. Favorite food
- c. Cognitive ability
- d. Temperature
- e. Letter grade received in a class

3. For each of the following, determine the level of measurement:

- a. T-shirt size
- b. Time taken to run 100 meter race
- c. First, second, and third place in 100 meter race
- d. Birthplace
- e. Temperature in Celsius

Answer:

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

4. What is the difference between a population and a sample? Which is described by a parameter and which is described by a statistic?
5. What is sampling bias? What is sampling error?

Answer:

Sampling bias is the difference in demographic characteristics between a sample and the population it should represent. Sampling error is the difference between a population parameter and sample statistic that is caused by random chance due to sampling bias.

6. What is the difference between a simple random sample and a stratified random sample?
7. What are the two key characteristics of a true experimental design?

Answer:

Random assignment to treatment conditions and manipulation of the independent variable

8. When would we use a quasi-experimental design?
9. Use the following dataset for the computations below:

X	Y
2	8
3	8
7	4
5	1

X	Y
9	4

- a. $\sum X$
- b. $\sum Y^2$
- c. $\sum XY$
- d. $(\sum Y)^2$

Answer:

- a. 26
- b. 161
- c. 109
- d. 625

10. What are the most common measures of central tendency and spread?

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