MAT 135, Discussion Questions 1.20

1. What is the difference between a population and a sample?

   population is the larger group of people we want to know about; Sample is a subset of the population

2. A psychologist wants to know if adults with normal vision can be fooled by a certain optical illusion. She recruits 50 students from her PSY 120 class and finds that 42 of them are fooled by the illusion.

   a. The population for this study is what? *adults w/ normal vision*

   b. The sample for this study is what? *50 students from PSY 120 class*

3. What is the difference between a parameter and a statistic?

   parameter is a property of the population we'd like to know about

   Statistic is a measurement of a property taken from a sample

4. The student newspaper runs a weekly question that readers can answer online or by campus mail. One question was "Do you think the college is doing enough to provide student parking?" Of the 82 people who responded, 79% said "No."

   a. What is the parameter being measured in this study?

   attitude of students toward student parking

b. What is the statistic in this study?

79% think parking is inadequate

5. What is the difference between a descriptive statistic and an inferential statistic?

descriptive is measured value from a sample or population

-the inferential statistic is what we think the population parameter is w/o measuring it directly but based on a sample

6. Give five examples of qualitative data that you could collect from your coworkers.

-hair color, favorite color, state they were born in, day of week they were born, etc.

examples will vary

7. Give five examples of quantitative data that you could collect about your students.

height, age, weight, score on their last test, parent's age when you were born, etc.

answers will vary

8. Give two examples of quantitative data that is discrete.

age (usually), # of cars they own,

answers will vary

9. Give two examples of quantitative data that is continuous.

length of morning commute, calories in last meal

answers will vary

10. Give two examples of data that is nominal (level of measurement).

baseball player jersey numbers
names of pets   answers will vary

11. Give two examples of data that is ordinal (level of measurement).

letter grades,   highest degree earned (maybe)

answers will vary

12. Give two examples of quantitative data that is interval (level of measurement).

temperatures in Celsius or Fahrenheit
degrees (angles)

answers will vary

13. Give two examples of quantitative data that is ratio (level of measurement).

height, weight, age

answers will vary

14. What is the difference between an observational study and an experimental study?

observational studies (including surveys) let people
behave naturally and measure results.
experiments involve manipulation of environment or
conditions to compare outcomes.

15. What is the difference between a sample and a sampling frame?

Sample is the people selected to study.
Sampling frame is a list of people used to select the
random sample

16. What is the key feature of a simple random sample?

the probability that any group of size n has the
same chance of being selected