Student: _____	**Instructor:** Andrea Steel	**Assignment:** Homework 1 - Chapter 1 - (
Date: _____	**Course:** Math 160 Fall 2019 A	ASSIGNMENT - 10 pts) Due 8/27/19

1. Several studies showed that after drinking coffee, subjects had increased blood levels of antioxidants. Antioxidants have been associated with decreased risk of heart disease. A coffee company financed this research. Identify what is wrong.

Choose the correct answer below.

- **A.** The data used in the studies is not reliable because it was not measured by the administrator.
- **B.** Since the research is composed of voluntary response samples, there may be key data points missing.
- **C.** It is not possible to take accurate measurements.
- **D.** It is questionable that the sponsor is a coffee company because this sponsor can be greatly affected by the conclusion.

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2. Several studies showed that after regular exercise on a treadmill, subjects had lowered blood pressure. High blood pressure has been associated with increased risk of heart disease and stroke. A fitness equipment company financed this research. Identify what is wrong.

Choose the correct answer below.

- **A.** Since the research is composed of voluntary response samples, there may be key data points missing.
- **B.** It is not possible to take accurate measurements.
- **C.** The data used in the studies is not reliable because it was not measured by the administrator.
- **D.** It is questionable that the sponsor is a fitness equipment company because this sponsor can be greatly affected by the conclusion.

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3. Determine whether the underlined number is a statistic or a parameter.

In a study of all 3177 seniors at a college, it is found that 25% own a television.

Choose the correct statement below.

- Statistic because the value is a numerical measurement describing a characteristic of a sample.
- Parameter because the value is a numerical measurement describing a characteristic of a population.
- Parameter because the value is a numerical measurement describing a characteristic of a sample.
- Statistic because the value is a numerical measurement describing a characteristic of a population.

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4. Determine whether the value given below is from a discrete or continuous data set.

When a car is randomly selected and weighed, it is found to weigh 1513.5 kg.

Choose the correct answer below.

- **A.** The data set is neither continuous nor discrete.
- **B.** A discrete data set because there are infinitely many possible values and those values can be counted
- **C.** A continuous data set because there are infinitely many possible values and those values cannot be counted
- **D.** A discrete data set because there are a finite number of possible values

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5. Determine whether the value is from a discrete or continuous data set.

Frequency of a guitar note is 430 Hz

Is the value from a discrete or continuous data set?

- Continuous
- Discrete

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6. Determine which of the four levels of measurement (nominal, ordinal, interval, ratio) is most appropriate.

Ages of children: 3, 4, 5, 6, and 7

Choose the correct answer below.

- Ratio
- Interval
- Ordinal
- Nominal

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7. Determine which of the four levels of measurement (nominal, ordinal, interval, ratio) is most appropriate.

Voltage measurements of batteries: 1.5 V, 3 V, 4.5 V, 6 V, and 7.5 V

Choose the correct answer below.

- Nominal
- Ordinal
- Ratio
- Interval

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8. Determine which of the four levels of measurement (nominal, ordinal, interval, ratio) is most appropriate.

Birth order among siblings in a family

Choose the correct level of measurement.

- **A.** Nominal
- **B.** Ratio
- **C.** Interval
- **D.** Ordinal

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9. Identify which type of sampling is used: random, systematic, convenience, stratified, or cluster.

A newspaper asks its readers to call in their opinion regarding their taste in reading.

Which type of sampling is used?

- **A.** Systematic
- **B.** Cluster
- **C.** Random
- **D.** Stratified
- **E.** Convenience

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10. Identify the type of sampling used: random, systematic, convenience, stratified, or cluster.

To estimate the percentage of defects in a recent manufacturing batch, a quality control manager at Daimler − Chrysler selects every 17th van that comes off the assembly line starting with the tenth until she obtains a sample of 80 vans.

Which type of sampling is used?

- **A.** Cluster
- **B.** Convenience
- **C.** Random
- **D.** Systematic
- **E.** Stratified

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11. Identify which type of sampling is used: random, systematic, convenience, stratified, or cluster.

To determine customer opinion of their safety features, Toyota randomly selects 150 dealerships during a certain week and surveys all customers visiting the dealerships.

Which type of sampling is used?

- **A.** Convenience
- **B.** Random
- **C.** Stratified
- **D.** Cluster
- **E.** Systematic

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12. Which of the following corresponds to the case when every sample of size n has the same chance of being chosen?

Choose the correct answer below.

- Experiment
- Probability sample
- Simple random sample
- Random sample

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13. Determine whether the data described below are qualitative or quantitative and explain why.

The preferred hands of an experiment's participants

Choose the correct answer below.

- **A.** The data are qualitative because they don't measure or count anything.
- **B.** The data are quantitative because they consist of counts or measurements.
- **C.** The data are qualitative because they consist of counts or measurements.
- **D.** The data are quantitative because they don't measure or count anything.

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14. State whether the data described below are discrete or continuous, and explain why.

The exact amounts of gasoline that customers of a gas station buy

Choose the correct answer below.

- **A.** The data are continuous because the data can only take on specific values.
- **B.** The data are discrete because the data can take on any value in an interval.
- **C.** The data are discrete because the data can only take on specific values.
- **D.** The data are continuous because the data can take on any value in an interval.

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15. Determine whether the underlined number is a statistic or a parameter.

A sample of professors is selected and it is found that 65% own a vehicle.

Choose the correct statement below.

- Statistic because the value is a numerical measurement describing a characteristic of a population.
- Parameter because the value is a numerical measurement describing a characteristic of a population.
- Statistic because the value is a numerical measurement describing a characteristic of a sample.
- Parameter because the value is a numerical measurement describing a characteristic of a sample.

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16. State whether the data described below are discrete or continuous, and explain why.

The exact weights (in pounds) of babies born in a certain country

Choose the correct answer below.

- **A.** The data are continuous because the data can only take on specific values.
- **B.** The data are continuous because the data can take on any value in an interval.
- **C.** The data are discrete because the data can only take on specific values.
- **D.** The data are discrete because the data can take on any value in an interval.

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17. Determine which of the four levels of measurement (nominal, ordinal, interval, ratio) is most appropriate for the data below.

Companies that produced movies in 2007

Choose the correct answer below.

- **A.** The ordinal level of measurement is most appropriate because the data can be ordered, but differences (obtained by subtraction) cannot be found or are meaningless.
- **B.** The interval level of measurement is most appropriate because the data can be ordered, differences (obtained by subtraction) can be found and are meaningful, and there is no natural starting point.
- **C.** The nominal level of measurement is most appropriate because the data cannot be ordered.
- **D.** The ratio level of measurement is most appropriate because the data can be ordered, differences (obtained by subtraction) can be found and are meaningful, and there is a natural starting point.

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18. Determine which of the four levels of measurement (nominal, ordinal, interval, ratio) is most appropriate for the data below.

Blood lead levels of "low," "medium," and "high"

Choose the correct answer below.

- **A.** The interval level of measurement is most appropriate because the data can be ordered, differences (obtained by subtraction) can be found and are meaningful, and there is no natural starting point.
- **B.** The ordinal level of measurement is most appropriate because the data can be ordered, but differences cannot be found or are meaningless.
- **C.** The ratio level of measurement is most appropriate because the data can be ordered, differences (obtained by subtraction) can be found and are meaningful, and there is a natural starting point.
- **D.** The nominal level of measurement is most appropriate because the data cannot be ordered.

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19. Determine which of the four levels of measurement (nominal, ordinal, interval, ratio) is most appropriate.

Birth order among siblings in a family

Choose the correct level of measurement.

- **A.** Ordinal
- **B.** Nominal
- **C.** Interval
- **D.** Ratio

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20. Determine which of the four levels of measurement (nominal, ordinal, interval, ratio) is most appropriate for the data below.

People's ages

Choose the correct answer below.

- **A.** The interval level of measurement is most appropriate because the data can be ordered, differences (obtained by subtraction) can be found and are meaningful, and there is no natural starting point.
- **B.** The nominal level of measurement is most appropriate because the data cannot be ordered.
- **C.** The ratio level of measurement is most appropriate because the data can be ordered, differences (obtained by subtraction) can be found and are meaningful, and there is a natural starting zero point.
- **D.** The ordinal level of measurement is most appropriate because the data can be ordered, but differences (obtained by subtraction) cannot be found or are meaningless.

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21. Determine which of the four levels of measurement (nominal, ordinal, interval, ratio) is most appropriate for the data below.

Mood levels of "happy," "alright," and "sad"

Choose the correct answer below.

- **A.** The ratio level of measurement is most appropriate because the data can be ordered, differences (obtained by subtraction) can be found and are meaningful, and there is a natural starting point.
- **B.** The interval level of measurement is most appropriate because the data can be ordered, differences (obtained by subtraction) can be found and are meaningful, and there is no natural starting point.
- **C.** The nominal level of measurement is most appropriate because the data cannot be ordered.
- **D.** The ordinal level of measurement is most appropriate because the data can be ordered, but differences (obtained by subtraction) cannot be found or are meaningless.

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22. Which of the following is associated with a parameter?

Choose the correct answer below.

- **A.** Data that were obtained from a voluntary poll at the end of a service call.
- **B.** Data that were obtained from a sample.
- **C.** Data that were obtained from an entire population.
- **D.** A numerical measurement describing some characteristic of a sample.

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23. Which of the following consists of discrete data?

Choose the correct answer below.

- Number of suitcases on a plane
- Amount of rainfall
- Hair color
- Tree height

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24. Which of the following would be classified as categorical data?

Choose the correct answer below.

- Tree height
- Hair color
- Number of suitcases on a plane
- Amount of rainfall