Worksheet1 (For practice only, not be collected for grading)

1. Mr. Gregory sold several cars this week. Here is some data about the cars he sold.

Car sold	Retail price	Miles per gallon	Seats	Navigation?
Accord	$22,205	32	5	no
Altima	$22,500	32	5	no
Camry	$23,070	30	5	yes
...	...	...	...	...

a. The individuals (or units) in this data set are: Car sold

b. Identify the variables and their types:

Retail price($) - quantative
Miles per gallon, - quantitative
Seats - quantative
Navigation - qualitative

2. How is sample related to a population?

Sample is a subset of the population.

3. Identify the population and the sample.

a. A study of 33, 043 infants in Italy was conducted to find a link between a heart rhythm abnormality and sudden infant death syndrome.

The population is the all infants in Italy.
The sample is the 33,043 infants that were studied.

b. A survey of 961 major-appliance shoppers found that 23% bought extended warranties.

Population: All major-appliance shoppers
Sample: 961 major appliance shoppers

c. To gather information about starting salaries at companies listed in the Standard & Poor's 500, a researcher contacts 65 of the 500 companies.

Population: 500 companies
Sample: 65 companies

4. Classify each variable as qualitative or quantitative.
a. Number of bicycles sold in 1 year by a large sporting goods store. (quantitative)
b. Colors of baseball caps in a store. (qualitative)
c. Times it takes to cut a lawn. (quantitative)
d. Capacity in cubic feet of six truck beds. (quantitative)
e. Classification of children in a day care center (infant, toddler, preschool). (quantitative)
f. Weights of fish caught in Lake George. (quantitative)
g. Marital status of faculty members in a large university. (qualitative)
h. Student ID (qualitative)
i. Zip code of a location (qualitative)

5. For each study, identify both the parameter and the statistic in the study.

a. Nexium is a drug that can be used to reduce the acid produced by the body and heal damage to the esophagus. A researcher wants to estimate the proportion of patients taking Nexium that are healed within 8 weeks. A random sample of 224 patients suffering from acid reflux disease is obtained, and 213 of those patients were healed after 8 weeks.

Parameter: the proportion of patients taking Nexium that are healed within 8 weeks.
Statistic: 213/224 = 0.95 (95%)

b. A researcher wants to estimate the average farm size in Kansas. From a simple random sample of 40 farms, the researcher obtains a sample mean farm size of 731 acres.

Parameter: the average farm size in Kansas
Statistic: a sample mean farm size of 731 acres

c. An education official wants to estimate the proportion of adults aged 18 or older who had read at least one book during the previous year. A random sample of 1006 adults aged 18 or older is obtained, and 835 of those adults had read at least one book during the previous year.

Parameter: the proportion of adults aged 18 or older who had read at least one book during the previous year.

Statistic: 835/1006 = 0.83 (83%)

d. The International Dairy Foods Association (IDFA) wants to estimate the average amount of calcium male teenagers consume. From a random sample of 50 male teenagers, the IDFA obtained a sample mean of 1081 milligrams of calcium consumed.

Parameter: the average amount of calcium male teenagers consume.
Statistic: a sample mean of 1081 milligrams of calcium consumed.

6. In a recent study, volunteers who had 8 hours of sleep were three times more likely to answer questions correctly on a math test than were sleep-deprived participants. Make an inference based on the results of this study.

An inference drawn from the sample is that individuals who are not sleep deprived will be more likely to answer math questions correctly than individuals who are sleep deprived.

7. Study shows that senior citizens who live in Florida have better memories than senior citizens who do live in Florida.
An inference drawn from the sample is that senior citizens who live in Florida have a better memory than senior citizens who do not live in Florida.

b. What is wrong with this type of reasoning?

This inference may incorrectly imply that if you live in Florida you will have a better memory.