Day 5 Homework KEY

1. Describe the difference between a statistic and a parameter.
   A **parameter** is a characteristic of a population. A **statistic** is a characteristic of a sample. Statistics enables you to make an educated guess about a population parameter based on a statistic computed from a sample randomly drawn from that population.
2. The United States House of Representatives has 435 members when all positions are filled. Currently there are three vacancies. Among the 432 positions that are currently filled 56% are Republicans.

   a. Identify the individuals of the study and the variable? The individuals are the representatives and the variable is their party affiliation.
   b. Do the data comprise a sample or a population? Yes, because all of the current representatives are included.
   c. Does the study represent a statistic or a parameter? A parameter because it relates to the entire population.
   d. For a set population, does a parameter ever change? No if the population does not change the parameter will not change. When the three vacancies are filled both the population and the parameter will change.
3. Television station DKA wants to know the proportion of TV owners in Arkansas who watch the station's new program at least once a week. The station asked a group of 1000 TV owners in Arkansas if they watch the program at least once a week.

   a. Identify the individuals of the study and the variable. People who own TVs in Arkansas.

   b. Do the data comprise a sample? Yes, not all TV owners were surveyed.

   c. If so, what is the underlying population? All TV owners in Arkansas.

   d. Is the proportion of viewers in the sample who watch the new program at least once a week a statistic or a parameter? A statistic.

4. Identify the population and the sample.

   a. A survey of 1353 American households found 18% of the households own a computer.
      The population is all American households the sample is the 1353 that were surveyed.
   b. A recent survey of 2625 elementary school children found that 28% of the children could be classified as obese. The population is all elementary children and the sample is the 2625 who were surveyed.
   c. The average weight of every sixth person entering the mall within a 3 hour period was 146 lb.
      The population is everyone that enters the mall and the sample are those surveyed.

Use the scenario identify populations and samplings

1. A beverage company wanted to see if people in the United States liked their new logo. Which choice best represents a population?

    a. A selection of logo artists.
    b. Every person in United States.
    c. A selection of shoppers from different states.
    d. 3,800 children age 5 - 15

2. A musician wanted to see what people who bought his last album thought about his songs. Which choice best represents a sample?

    a. Every person who bought the album.
    b. A selection of people who didn't want to buy the album.
    c. 250 girls who bought the album.
    d. A selection of 3,294 people who bought the album.

3. A gaming website wanted to find out which console its visitors owned. Which choice best represents a population?

    a. Visitors to the 3DS section.
    b. All of the website visitors.
    c. Visitors to the PS4 section.
    d. Visitors who are on the website for more than 5 minutes.

4. Before a nation-wide election, a polling place was trying to see who would win. Which choice best represents a sample?

    a. A selection of voters over age 50.
    b. A selection of male voters.
    c. A selection of voters of different ages.
    d. All voters.

5. A toy store owner tracking how much kids spend each month on toys. Which choice best represents a population?

    a. All of kids who buy toys.
    b. 227 rich kids.
    c. 228 boys 7 – 15
    d. 235 kids from age 10 to 15.