

## Section 1.1 - An Overview of Statistics

1. Assignment: What is statistics? How does statistics apply to my life?
  2. Definitions:
    - **Data** - information coming from observations, counts, measurements, or responses
    - **Statistics** - science of collecting, organizing, analyzing, and interpreting data to make decisions
    - **Population, Sample** - *all* outcomes, responses, measurements or counts
  3. Example #1: p. 6, pr. 16 Determine whether the data set is a population or a sample.
    - (a) The number of pets in each U.S. household.
    - (b) The course evaluation results for one section of Math 123.
  4. **Parameter, Statistic**
  5. Example #2:

State whether each boldface number is a parameter or a statistic.

    - (a) Your local newspaper contains a large number of advertisements for unfurnished one-bedroom apartments. You choose 10 at random and calculate that their mean monthly rent is **\$540** and that the standard deviation of their rents is **\$80**.
    - (b) Voter registration records show that **68%** of all voters in Indianapolis are registered as Republicans. To test a random-digit dialing device, you use the device to call 150 randomly chosen residential telephones in Indianapolis. Of the registered voters contacted, **73%** are registered Republicans.
    - (c) A carload lot of ball bearings has mean diameter **2.5003** centimeters (cm). This is within the specifications for acceptance of the lot by the purchaser. By chance, an inspector chooses 100 bearings from the lot that have mean diameter **2.5009** cm. Because this is outside the specified limits, the lot is mistakenly rejected.
  6. **Descriptive Statistics** - involves the organization, summarization, and display of data
  7. **Inferential Statistics** - involves using a sample to draw conclusions about a population (uses probability)
  8. Example #3: p. 7
- pr. 18: Venn diagram; rectangle = major of students at Marietta College; circle = major of Marietta college students who take statistics.
- pr. 24: A survey of 791 vacationers from the United States found that they planned on spending at least \$2000 for their next vacation. Identify the population and the sample.