

# Sect.1-1 An Over view of Statistics

***Objective: SWBAT learn the definition of Statistics***

***(b) distinguish between a population and a sample, A parameter and a statistic***

***(C) Distinguish between descriptive statistics and inferential statistics.***

# Questions to consider

- *( A ) What is Statistics?*
- *( B ) Why should I study Statistics?*
- *( C ) How can Statistics help me in my profession?*



# Definitions

**Data** Consists of information coming from observations , counts, measurements, or responses.

**Statistics:** Is the science of collecting , organizing, analyzing and Interpreting data in order to make a decision.

**A population:** is the collection of all outcomes ,responses, measurements, or counts that are of interest.

**A Sample** is a subset of a population.

# Examples

- **Identifying Data Sets:**

In a recent survey 3002 adults in the United States were asked if they read news on the internet at least once a week. Six hundred of the adults said Yes. Identify the **population** and the **sample**. Describe the **data set**.

The **population** consists of the responses of all the adults in the United States. And the **Sample** consists of the 3002 adults in the United States. The **data set** consists of 600 yes's and 2402 no's.

# Venn Diagram

Responses of all adults in the United States  
(population. )

Responses of adults in  
the Survey  
(Sample. )

600 yes's  
2402 No's

Try this Yourself



**The U.S. Department of Energy conducts surveys of 800 gasoline stations to determine the average price per gallon of regular gasoline. On May 24, 2001 the average price was \$1.713 per gallon. Identify the population and the Sample.**

# Answer

The population consists of the prices per gallon of all stations in the United States.

The Sample consists of the prices per gallon of regular gas at the 800 surveyed stations.

The data sets consists of the 800 prices.

# Definitions

A **parameter** is a numerical description of a **population** characteristic.

A **statistic** is a numerical description of a **sample** characteristic.





# Examples

- 1.) A recent survey of a sample of MBA's reported that the average starting salary for an MBA is less than \$65,000.
- 2.) Starting salaries for the 667 MBA graduates from the University of Chicago Graduate School of Business increased 8.5% from the previous year.
- 3.) In a random check of retail stores The Food and Drug Administration found that 34% of the stores were not storing fish at the proper temperature.

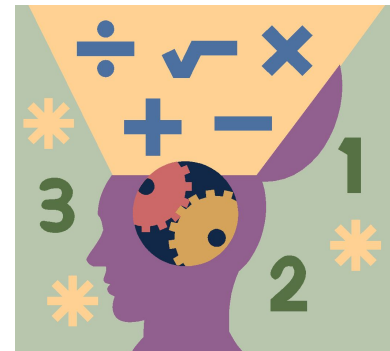
# Solution

- 1.) because the numerical measure of \$65,000 is based on a subset of the population it is a **sample** statistic.
- 2.) Because the numerical measure of 8.5% is based on all 667 graduates starting salaries it is a **population** statistic.
- 3.) Because the numerical measure of 34% is based on a subset of the population it is a **sample** statistic.

# Try This Yourself

In 2001 major league baseball teams spent a total of \$1,968,088,814 on players salaries. Does this numerical value represent a population parameter or a sample statistic?

- a.) It is Population
- b.) It is a parameter.



# Branches of Statistics

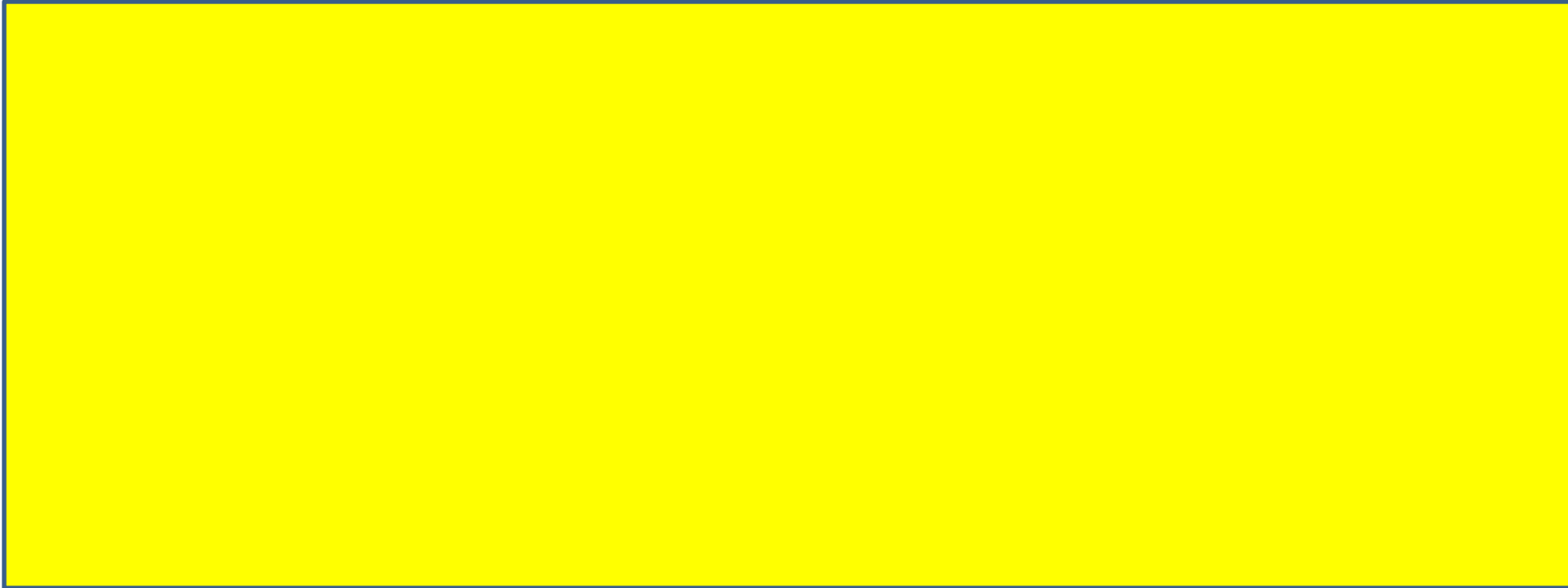
## Definition

**Descriptive Statistics:** is the branch of statistics that involves the organization ,summarization , and display of data.

**Inferential Statistics:** is the branch of statistics that involves using a sample to draw conclusions about a population. A basic tool in the study of Inferential statistics is **Probability**.

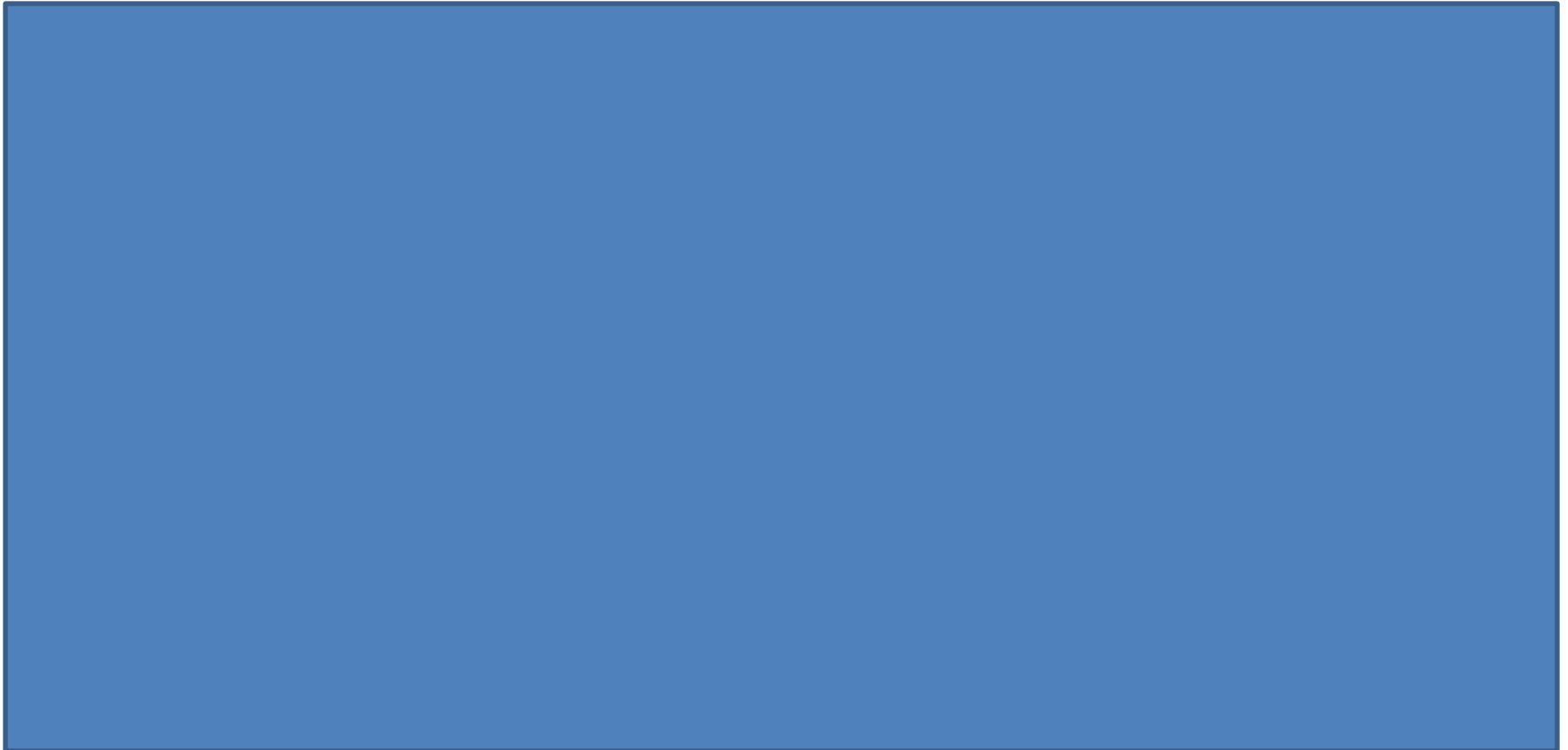
# Example

A large sample of men aged 48 were studied for 18 years. For unmarried men 60% to 70% were alive at 65. For married men 90% were alive at 65. Which part represents descriptive Statistics? What conclusions might be drawn from this study using inferential Statistics?



# Example

In a sample of Wall Street analysts the percent who incorrectly forecasted high-tech earnings in a recent year was 44%.



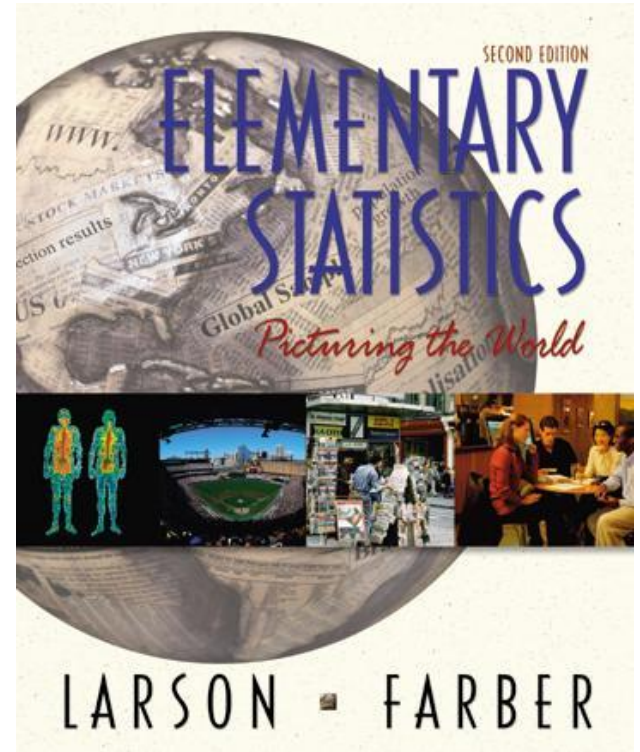
# Homework Pgs. 6-7

1-6,9-11, 13-15,17-19,21-24 and 29



# Section 1.1

## An Overview of Statistics



After you see the slides for each section, do the Try It Yourself problems in your text for that section to see if you understood the material. Then, do the assigned problems for that section.



# Introduction to Statistics

As you view these slides be sure to have paper, pencil, a calculator and your text handy. Click to advance to the slide show.

# What Is Statistics?

Statistics is the science of collecting, organizing, analyzing, and interpreting data in order to make decisions.

# Important Terms

## Population

The collection of **all** responses, measurements, or counts that are of interest.

## Sample

**A portion or subset of the population.**

# Important Terms

## Parameter

A number that describes a population characteristic.

*Average gross income of all  
people in the United States in  
2002.*

## Statistic

A number that describes a sample characteristic.

*2002 gross income of people  
from a sample of three states*

# Two Branches of Statistics

## **Descriptive Statistics**

Involves organizing, summarizing, and displaying data.

## **Inferential Statistics**

Involves using sample data to draw conclusions about a population.