## TOPIC: INTRO TO STATISTICS

### Parameters vs. Statistics

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

► Data = _____ you gather from counting/measuring or collecting as responses.

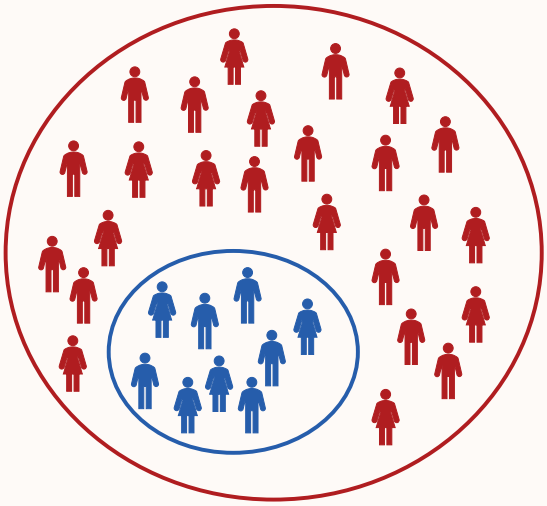
► **Population** = Set containing _____ data ("*every*", "*each*"); **Sample** = only _____ of population, subset

► **Parameter** = A # observed from **[ POP | SAMP ]**; **Statistic** = A # observed from **[ POP | SAMP ]**

**EXAMPLE**

For $(A)$ & $(B)$, label each data set as being from a *population* or *sample*.
For $(C)$ & $(D)$, label each number as a *parameter* or *statistic*.

**Population Parameters vs. Sample Statistics**



$(A)$

The salary of every employee at a marketing firm

$(B)$

The salaries of 12 out of 100 total employees at a marketing firm

$(C)$

The average salary of all employees at a marketing firm is $41,000.

$(D)$

The average salary of 12 out of 100 employees at a marketing firm is $58,000.

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**PRACTICE** You collect the test scores of every other student in a class. Is this data set a population or sample?

**(A)** Population

**(B)** Sample

**PRACTICE** A report shows the amount (in dollars) spent by each customer in a grocery store. Is this data set a population or sample?

**(A)** Population

**(B)** Sample

**PRACTICE** 46.5% of all registered voters in a country are registered democrats. Is this a parameter or a statistic?

**(A)** Parameter

**(B)** Statistic

**PRACTICE** A survey of 40 gym members from a large gym finds an average work out duration is 52 minutes. Is this a parameter or a statistic?

**(A)** Parameter

**(B)** Statistic

## TOPIC: INTRO TO STATISTICS

### Types of Data

◆ Recall: Data = information we gather from populations or samples. Data can be categorized in different ways.

| Qualitative Data | Quantitative Data | |
|---|---|---|
| Data are QUALITIES (e.g. _____) | Data are QUANTITIES (e.g. _____) | |
| | **Discrete** | **Continuous** |
| *Examples*: | #s _____ be broken down further | #s _____ be broken down further |
| | *Examples*: | *Examples*: |
|  *Favorite color* |  *Dice Roll* |  *Time* |
|  *Eye color* |  *# of students in classroom* |  *Temperature* |

**EXAMPLE** Determine whether the data are qualitative or quantitative. If quantitative, is it discrete or continuous?

You survey the nationalities of 10 people on a plane.

**(A)** Qualitative

**(B)** Quantitative; Discrete

**(C)** Quantitative; Continuous

**(D)** None of the above

With GPS-enabled watches, you measure the distances people walk to work each day.

**(A)** Qualitative

**(B)** Quantitative; Discrete

**(C)** Quantitative; Continuous

**(D)** None of the above

## TOPIC: INTRO TO STATISTICS

**PRACTICE** Which of the following is **NOT** quantitative data?

**(A)** The amount of hours students study per week

**(B)** The heights of basketball players (in centimeters)

**(C)** The brands of smartphones owned by students

**(D)** The outcomes of ten rolls of a standard six-sided

**PRACTICE** Which of the following is a **discrete** quantitative set of data?

**(A)** The weight (in kg) of a bag of apples in a grocery store

**(B)** The temperature (in °C) in a classroom

**(C)** The time (in seconds) it takes for a swimmer to complete a lap

**(D)** The number of goals scored by a soccer team in a match