Lesson 7-7&8

Objective - To determine whether a given sample appropriately represents a population.

Statistics - An area of mathematics dedicated to gathering and interpreting data.

Population - The group of people or objects that is being questioned or studied.

Sample - A smaller part of the whole population that is chosen to be studied to save time and resources.

Types of Samples

Biased Samples - Do not usually represent the entire population

Unbiased Samples - Accurately represents the entire population

Self-selected - People volunteer to be surveyed.

Systematic - Using a pattern to select people to be surveyed.

Convenience - Choose people that are easy to reach to be surveyed.

Random - All people have an equal chance to be selected for survey. Selection process is random with no patterns.

Classifying Samples

Classify each sample as *self-selected*, *convenient*, *systematic*, or *random*. Tell whether the sample is biased or unbiased.

1) A teacher wants to know what percent of students read the chapter. She asks a few students in her 3rd period class.

Convenient - Biased

2) A banker wants to know how many people in his small town need loans. He calls one person from each page of the local 200 page phone book.

Systematic - Unbiased

Classifying Samples

Classify each sample as *self-selected*, *convenient*, *systematic*, or *random*. Tell whether the sample is biased or unbiased.

3) George wants to survey 6th graders about their favorite cereal. He passes out surveys to every other person seated in his 6th grade class.

Systematic - Unbiased

4) A video store wants to know what movies are most popular in the state. It surveys people that come into its store.

Convenient - Biased

Classifying Samples

Classify each sample as *self-selected*, *convenient*, *systematic*, or *random*. Tell whether the sample is biased or unbiased.

5) The IRS uses its computer system to randomly pick 10,000 tax-payers to determine what percent of Americans will receive refunds for the year.

Random - Unbiased

6) A school wants to know how many of its parents are happy with the after-school program. It sends home a letter asking parents to call in with their opinion.

Self-selected - Biased

A survey was conducted of students and teachers to see what they wanted to purchase for the school.

	Students	Teachers
New Marquis	7	10
Baseball Uniforms	30	2
Calculators	12	8
Copy Machine	1	20
	50	40

1) Identify the population and the samples.

Population: School   Samples: 50 students   40 teachers

Make a circle graph to represent each sample.

Lesson 7-7&8 (cont.)

Make a circle graph to represent each sample.

	Students	Teachers
Marquis	$\frac{7}{50} = 0.14(360°) \approx 50°$	$\frac{10}{40} = 0.25(360°) = 90°$
Uniforms	$\frac{30}{50} = 0.60(360°) = 216°$	$\frac{2}{40} = 0.05(360°) = 18°$
Calculators	$\frac{12}{50} = 0.24(360°) \approx 87°$	$\frac{8}{40} = 0.20(360°) = 72°$
Copy Machine	$\frac{1}{50} = 0.02(360°) \approx 7°$	$\frac{20}{40} = 0.50(360°) = 180°$