READY, SET, GO! Name Period Date

READY

Topic: Contrasting association and causation

When collecting data, statisticians are often interested in making predictions. Sometimes they simply want to know if one variable is related or is **associated** with another variable. (Can you predict one variable given information on the other one). Other times, they want to determine if one variable actually **causes** a change in another variable. For each example below, decide whether the variables simply explain each other, or if you think one variable would cause the other to change.

1. As the amount of food Ollie the elephant eats increases her weight also increases. (Associated/Causes)
2. As Popsicle sales go up in the summer, the number of people drowning also increases. (Associated/Causes)
3. As Erika's feet grow longer, she grows taller. (Associated/Causes)
4. As Tabatha gets older, her reading score improves in school. (Associated/Causes)

SET

Topic: Identifying population, sample, and parameter

For each scenario below, identify the *population*, *sample* and *parameter* of interest.

5. The local school board wants to get parents to evaluate teachers. They select 100 parents and find that 89% approve of their child's teacher.

   Population: Sample: Parameter:

6. Jarret wants to know the average height of the students in his school. There are 753 students in his high school; he finds the heights of 52 of them.

   Population: Sample: Parameter:

7. A government official is interested in the percent of people at JFK airport that are searched by security. He watches 300 people go through security and observes 42 that are searched.

   Population: Sample: Parameter:

For each scenario, identify what type of sampling was used to obtain the sample. Explain whether or not you think the sample will be representative of the population it was sampled from:

8. Elvira surveys the first 60 students in the lunch line to determine if students at the school are satisfied with school lunch.

Type of sample:

Representative? Explain.

9. Elvira selects every 5th student in the lunch line to determine if students at the school are satisfied with school lunch.

Type of sample:

Representative? Explain.

10. Elvira randomly selects 7 different tables in the lunchroom and surveys every student on the table to determine if students at the school are satisfied with school lunch.

Type of sample:

Representative? Explain.

11. Elvira assigns every student in the school a number and randomly selects 60 students to survey to determine if student at the school are satisfied with school lunch.

Type of sample:

Representative? Explain.

12. Elvira wants to determine if students are satisfied with school lunch. She leaves surveys on a table for students to answer as the walk by.

Type of sample:

Representative? Explain.

13. Elvira wants to determine if students are satisfied with school lunch. She wants to include input from each grade level at the high school. She randomly surveys 25 freshman, 25 sophomores, 25 juniors, and 25 seniors.

Type of sample:

Representative? Explain.