

Data Science Test

Practice 1

Name: _____

1. Researchers at the Fish and Wildlife Service go out and do capture recapture at Lake Trout. They tag and release 100 fish. They return to the lake a week later, and then capture 500 more fish. Of the fish that they capture 20 are tagged.
 - a. What is our point-estimate of the number of fish in the lake?

 - b. What might have been the purpose of waiting a week to after they tagged the original fish?

 - c. When they returned to the office they did a simulation with different numbers of fish in the lake to try to put some bounds on the range of fish in the lake. Their data is presented below. What is a reasonable range for the number of fish in the lake.

2. Attached to the back of this test is a survey.
 - a. Describe the response to each question as categorical or quantitative.

Question number	Categorical/Quantitative
1	
2	
3	
4	
5	
6	
7	

- b. Pick two questions, and explain why that question or the response that they elicit will be difficult for the researchers.

3. In November 2003 Discover published an article on the colonies of ants. They reported some basic information about many species of ants and the results of some discoveries found by myrmecologist Walter Tschinkel of the University of Florida. Information included the scientific name of the ant species, the geographic location, the depth of the nest (in feet), the number of chambers in the nest, and the number of ants in the colony. The article documented how new ant colonies begin, the ant-nest design, and how nests differ in shape, number, size of chambers, and how they are connected, depending on the species. It reported that nest designs include vertical, horizontal, or inclined tunnels for movement and transport of food and ants.

Describe the W's; if given:

- a. Who:
- b. What:
- c. Where:
- d. When:

- e. How:
- f. Why

4. Here are the results from the January 2007 Gallup poll example from your textbook regarding what respondents were most looking forward to seeing during the upcoming Super Bowl

	Male	Female	Total
<i>Responses</i>			
Game	279	200	479
Commercials	81	156	237
Won't Watch	132	160	292
Total	492	516	1008

Fully describe what each number below represents in this data.

- a. 200 –
- b. 237 –
- c. 516-
- d. Express the data as percentages for females for each response.

	Female
<i>Responses</i>	
Game	
Commercials	

	Female
Won't Watch	
Total	

- e. Is the feeling about the Super Bowl independent of Sex? Explain.