Math 153 - Quiz 1
January 22, 2015

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (1 point) According to U.S. census data, the average number of people per U.S. household is 2.63. Is 2.63 a parameter or a statistic? Explain.

THE CENSUS IS SUPPOSED TO BE A SURVEY OF THE ENTIRE POPULATION. 2.63 IS A PARAMETER BECAUSE IT DESCRIBES THE POPULATION.

2. (1 point) Jon's sociology professor asked him to conduct a survey of ten people. Jon surveyed ten of his classmates. What type of sampling did he use?

CONVENIENCE SAMPLING

3. (2 points) A veterinarian wanted to conduct a review of her clients. She separated her clients by type of animal, and then selected a certain number of clients from each kind of animal. What type of sampling is this?

STRATIFIED SAMPLING

4. (1 point) In a group of 500 randomly selected adults, the average travel time to work was 25.5 minutes. Is 25.5 a statistic or a parameter? Explain.

25.5 IS A STATISTIC. IT DESCRIBES A SAMPLE.

5. (5 points) A consumer advocacy group was concerned that buyers of M&M candies were being cheated. The group conducted a study to collect evidence for their campaign.

(a) Are the numbers of M&M's per bag discrete or continuous?

DISCRETE

(b) Identify the level of measurement (nominal, ordinal, interval, ratio) for the weights of individual candies.

RATIO

(c) Samples of size four were obtained by choosing candies of different colors. Are these simple random samples?

NO, NOT ALL FOUR CANDY SAMPLES ARE EQUALLY LIKELY. FOR EXAMPLE, A SAMPLE OF FOUR BLUES IS IMPOSSIBLE.

(d) M&M's were separated into groups according to their colors. Two of those groups were selected for study. What type of sampling is this?

CLUSTER SAMPLING

(e) It was established that there is a strong correlation between eating M&M candies and being allergic to blue food coloring. Does this imply that M&M's candies are the cause of blue food coloring allergies?

NO, CORRELATION DOES NOT IMPLY CAUSATION.