

Name: _____ Hour: _____ Date: _____

Favorite FRQ for Daren Starnes: 2005 #1

Unit 1: Exploring One-Variable Data

1. The goal of a nutritional study was to compare the caloric intake of adolescents living in rural areas of the United States with the caloric intake of adolescents living in urban areas of the United States. A random sample of ninth-grade students from one high school in a rural area was selected. Another random sample of ninth graders from one high school in an urban area was also selected. Each student in each sample kept records of all the food he or she consumed in one day.

The back-to-back stemplot below displays the number of calories of food consumed per kilogram of body weight for each student on that day.

<u>Urban</u>		<u>Rural</u>
9 9 9 9 8 8 7 6	2	
4 4 3 1 0	3	2 3 3 4
9 7 6 6 5	3	5 6 6 6 7
2 0	4	0 2 2 2 4
	4	5 6 8 8 9
	5	1

- (a) Write a few sentences comparing the distribution of the daily caloric intake of ninth-grade students in the rural high school with the distribution of the daily caloric intake of ninth-grade students in the urban high school.

- (b) Is it reasonable to generalize the findings of this study to all rural and urban ninth-grade students in the United States? Explain.

- (c) Researchers who want to conduct a similar study are debating which of the following two plans to use.

Plan I: Have each student in the study record all the food he or she consumed in one day. Then researchers would compute the number of calories of food consumed per kilogram of body weight for each student for that day.

Plan II: Have each student in the study record all the food he or she consumed over the same 7-day period. Then researchers would compute the average daily number of calories of food consumed per kilogram of body weight for each student during that 7-day period.

Assuming that the students keep accurate records, which plan, I or II, would better meet the goal of the study? Justify your answer.

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Least Favorite FRQ for Lindsey Gallas: 2017 #1

Unit 2: Exploring Two-Variable Data

1. Researchers studying a pack of gray wolves in North America collected data on the length x , in meters, from nose to tip of tail, and the weight y , in kilograms, of the wolves. A scatterplot of weight versus length revealed a relationship between the two variables described as positive, linear, and strong.
 - (a) For the situation described above, explain what is meant by each of the following words.
 - (i) Positive:
 - (ii) Linear:
 - (iii) Strong:

The data collected from the wolves were used to create the least-squares equation $\hat{y} = -16.46 + 35.02x$.

- (b) Interpret the meaning of the slope of the least-squares regression line in context.

- (c) One wolf in the pack with a length of 1.4 meters had a residual of -9.67 kilograms. What was the weight of the wolf?

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Favorite FRQ for Josh Tabor: 2016 #3

Unit 3: Collecting Data

3. Alzheimer's disease results in a loss of cognitive ability beyond what is expected with typical aging. A local newspaper published an article with the following headline.

Study Finds Strong Association Between Smoking and Alzheimer's

The article reported that a study tracked the medical histories of 21,123 men and women for 23 years. The article stated that, for those who smoked at least two packs of cigarettes a day, the risk of developing Alzheimer's disease was 2.57 times the risk for those who did not smoke.

- (a) Identify the explanatory and response variables in the study.

Explanatory variable:

Response variable:

- (b) Is the study described in the article an observational study or an experiment? Explain.

- (c) Exercise status (regular weekly exercise versus no regular weekly exercise) was mentioned in the article as a possible confounding variable. Explain how exercise status could be a confounding variable in the study.

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Homework (AP Classroom)

The seniors at three high schools were surveyed about their plans after graduation. The following table shows the responses, classified by high school.

	Work	Military	College	Undecided	Total
High School A	99	49	138	63	349
High School B	62	26	156	54	298
High School C	83	31	124	71	309
Total	244	106	418	188	956

One senior from the high schools will be selected at random. What is the probability that the senior selected will not be from High School B given that the senior responded with a choice other than college?

A $\frac{156}{418}$

B $\frac{538}{956}$

C $\frac{262}{418}$

D $\frac{658}{956}$

E $\frac{396}{538}$