

## Practice Assignment: Statistical Questions

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- 1) Which of the properties below should a good statistical question have? Select all that apply. There may be more than one correct answer.
- a) The question requires data in order to answer it.
  - b) The question has an exact answer.
  - c) The question anticipates variability.
  - d) The question seeks to find a general trend, central tendency, or typical value.

Answer: a, c, d

Questions 2–5: Consider the bad driver data<sup>1</sup> that we used in our in-class activity. For each of the questions below, determine whether it is a good statistical question and whether the question can be answered with the bad driver data.

- 2) Which U.S. state has the worst speeders?

Part A: Is this question a good statistical question?

- a) Yes
- b) No

Explain your answer.

Answer: a; this question anticipates variability and does not have an exact answer.

Part B: Can this question be answered using the bad driver data?

- a) Yes
- b) No

Explain your answer.

Answer: b; no, we only have one variable that tells us anything about speeders, which is the proportion of fatal accidents involving drivers who were speeding. There is a lot of other information we would want to have in order to fully answer this question.

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<sup>1</sup> *bad\_drivers: Dear Mona, which state has the worst drivers?* (n.d.). RDocumentation. Retrieved from [https://www.rdocumentation.org/packages/fivethirtyeight/versions/0.6.1/topics/bad\\_drivers](https://www.rdocumentation.org/packages/fivethirtyeight/versions/0.6.1/topics/bad_drivers)

- 3) What percentage of automobile accidents in the United States in 2019 involved Uber drivers?

Part A: Is this question a good statistical question?

- a) Yes
- b) No

Explain your answer.

**Answer: b; this question has an exact answer.**

Part B: Can this question be answered using the bad driver data?

- a) Yes
- b) No

Explain your answer.

**Answer: b; we don't have any information about Uber drivers, nor do we have aggregate data for the whole United States.**

- 4) Which U.S. state has the highest average combined car insurance premiums?

Part A: Is this question a good statistical question?

- a) Yes
- b) No

Explain your answer.

**Answer: b; this question has an exact answer.**

Part B: Can this question be answered using the bad driver data?

- a) Yes
- b) No

Explain your answer.

**Answer: a; this variable is specifically recorded for each state in the data given, so we can look at the list and find the state with the highest value.**

- 5) Does driving tend to be more dangerous on the east coast or the west coast of the United States?

Part A: Is this question a good statistical question?

- a) Yes
- b) No

Explain your answer.

Answer: a; yes, this question anticipates variation and does not have an exact answer.

Part B: Can this question be answered using the bad driver data?

- a) Yes
- b) No

Explain your answer.

Answer: a; yes, “more dangerous” can be interpreted to mean more likely to have a fatal accident, and we have several variables that tell us various characteristics about fatal accidents for all 50 states, which of course includes those from both coasts.

