

Problem 1

Parameter: Number describing population

Statistic: Number describing sample

a) Parameter: 521 \rightarrow More likely attribute to bias
Statistic: 595

b) Parameter: \$4.12/gallon \rightarrow More likely attribute to bias
Statistic: \$5.53/gallon based on the location of the gas station

c.) I thought of this question from a probability perspective. The probability of getting heads or tails while flipping a coin is 0.5. But after doing 10 flips the probability of getting heads is 0.7. So:

Parameter: 0.5 \rightarrow Attribute to Variability of
Statistic: 0.7 it is a fair coin

My Question: Does it really make sense for the probability to change for infinite flips or finite flips?

Problem 2

Bias is statistic $\hat{p} \neq$ Corresponding parameter p

a.) Sampling bias: Maybe the sample chosen belong to a similar demograph or background that may affect their choice

Non response bias: Some customers may have not responded to the survey at all

b.) The study would not be biased because a statistic is said to be unbiased if it is equal to the corresponding parameter

Problem 3

Problems with the question:

- It is not specific enough: What does most week mean?
- Define exercise: Exercise does not necessarily mean working out in the gym
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"How many times in a week do you engage in physical exercise?"

Problem 4:

When trying to find the average age of people who engage in a particular activity in a sample?