Practice Readiness Assurance Test

Quantitative Reasoning, 19 October 2020

1) Exercise 1 on page 313 of the textbook.

2) Exercise 3 on page 313 of the textbook.

3) If a sample is not *representative*…

   (a) …no sample statistic can equal its corresponding population parameter.

   (b) …all sample statistics will equal their corresponding population parameters.

   (c) …the sample statistics may not accurately reflect the corresponding population parameters.

   (d) …the sample size is too small.

4) What is the range of possible values that the following code could produce?

```
sum(sample(1:6, size = 2, replace = TRUE))
```

   (a) 1 to 6

   (b) 2 to 12

   (c) 3 to 11

   (d) It's impossible to say.

Answers:

3) C

B is incorrect because the sample statistics will rarely equal the population parameters, regardless of whether the sample is representative.

D is incorrect because representativeness isn't primarily about sample size, but rather its relation to characteristics of the population that are important to the question being investigated. A large sample size cannot salvage a sample that is not representative.

A is incorrect; although sample statistics will seldom equal their corresponding population parameters, they could do so, even if the sample is not representative.

C is the best answer.

4) B

This line of code simulates rolling two dice and then summing the result. Incidentally, C would be the answer if `replace = FALSE`. Do you see why?