3.1 Review Questions

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3.1.R1

1/1 point (graded)

Why is linear regression important to understand? Select all that apply:

- ☐ The linear model is often correct

- ☑ Linear regression is very extensible and can be used to capture nonlinear effects

- ☑ Simple methods can outperform more complex ones if the data are noisy

- ☑ Understanding simpler methods sheds light on more complex ones

✔

Explanation

The linear model (and every other model) is hardly ever true, but it is an important piece in many more complex methods.

3.1.R2

1/1 point (graded)

You may want to reread the paragraph on confidence intervals on page 66 of the textbook before trying this queston (the distinctions are subtle).

Which of the following are true statements? Select all that apply:

- ☑ A 95% confidence interval is a random interval that contains the true parameter 95% of the time

- ☐ The true parameter is a random value that has 95% chance of falling in the 95% confidence interval

- ☐ I perform a linear regression and get a 95% confidence interval from 0.4 to 0.5. There is a 95% probability that the true parameter is between 0.4 and 0.5.

- ☑ The true parameter (unknown to me) is 0.5. If I sample data and construct a 95% confidence interval, the interval will contain 0.5 95% of the time.

✔

Explanation

Confidence intervals are a "frequentist" concept: the interval, and not the true parameter, is considered random.