



Assessing Performance

13 questions

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1. If the features of Model 1 are a strict subset of those in Model 2, the TRAINING error of the two models can **never** be the same.

- ☐ True
- ☒ False

-
2. If the features of Model 1 are a strict subset of those in Model 2, which model will USUALLY have lowest TRAINING error?

- ☐ Model 1
- ☒ Model 2
- ☐ It's impossible to tell with only this information

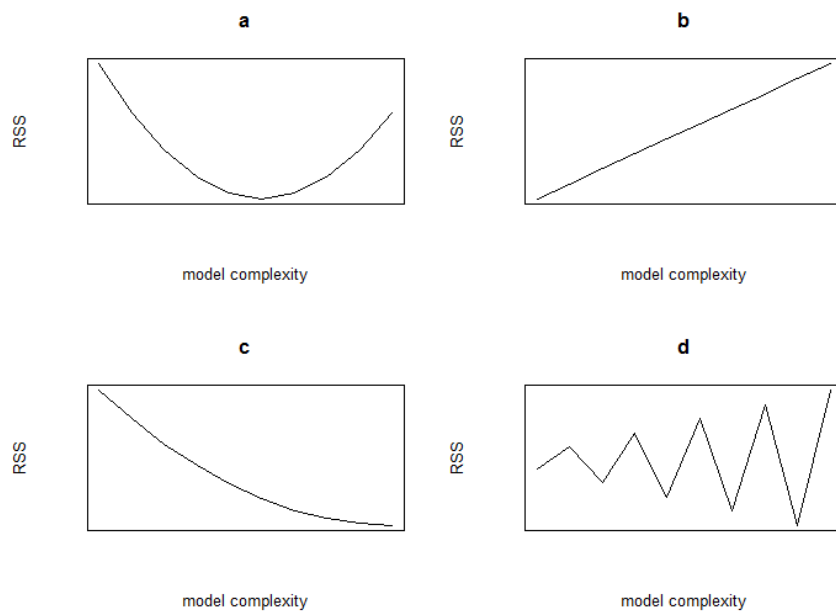
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3. If the features of Model 1 are a strict subset of those in Model 2, which model will USUALLY have lowest TEST error?

- ☐ Model 1
- ☐ Model 2
- ☒ It's impossible to tell with only this information

4. If the features of Model 1 are a strict subset of those in Model 2, which model will USUALLY have lower BIAS?

- ☐ Model 1
- ☒ Model 2
- ☐ It's impossible to tell with only this information

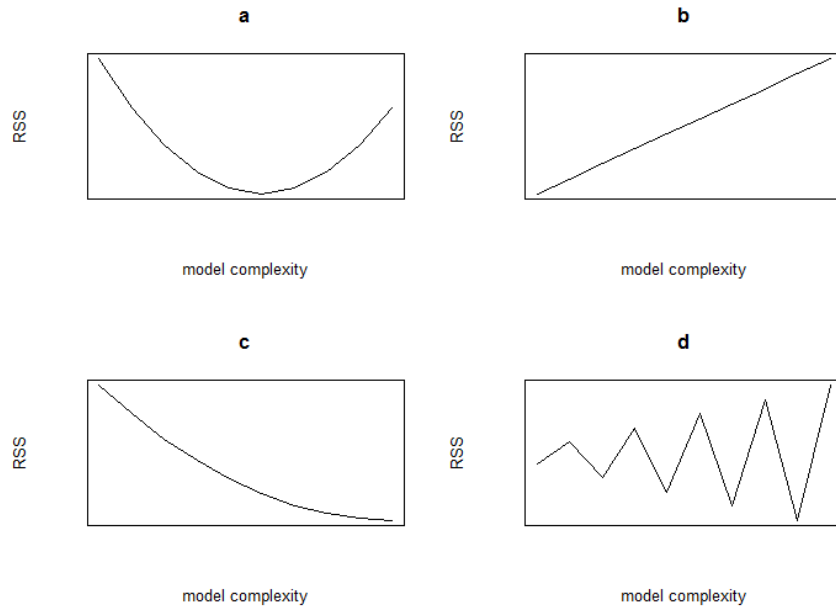
5. Which of the following plots of model complexity vs. RSS is most likely from TRAINING data (for a fixed data set)?



- ☐ a
- ☐ b
- ☒ c

☐ d

6. Which of the following plots of model complexity vs. RSS is most likely from TEST data (for a fixed data set)?



☒ a

☐ b

☐ c

☐ d

7. It is **always** optimal to add more features to a regression model.

☐ True

☐ False

8. A simple model with few parameters is most likely to suffer from:

- ☐ High Bias
- ☐ High Variance
-

9. A complex model with many parameters is most likely to suffer from:

- ☐ High Bias
- ☐ High Variance
-

10. A model with many parameters that fits training data very well but does poorly on test data is considered to be

- ☐ accurate
- ☐ biased
- ☐ overfitted
- ☐ poorly estimated
-

11. A common process for selecting a parameter like the optimal polynomial degree is:

- ☐ Bootstrapping

- ☐ Model estimation
 - ☐ Multiple regression
 - ☐ Minimizing test error
 - ☐ Minimizing validation error
-

12. Selecting model complexity on test data (choose all that apply):

- ☐ Allows you to avoid issues of overfitting to training data
 - ☐ Provides an overly optimistic assessment of performance of the resulting model
 - ☐ Is computationally inefficient
 - ☐ Should never be done
-

13. Which of the following statements is true (select all that apply):
For a **fixed model complexity**, in the limit of an infinite amount of training data,

- ☐ The noise goes to 0
 - ☐ Bias goes to 0
 - ☐ Variance goes to 0
 - ☐ Training error goes to 0
 - ☐ Generalization error goes to 0
-

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