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Week 12 Reading Questions

1) The trade offs between a complicated model and a simple model are; for a complicated model there are many predictor values, and this creates a good r value, but they are hard to represent by a model (too many values to display). For a simple model there is only 1 predictor value (easy to display) but not as good of an r value. To simplify this, if we where studying Penguins a complicated model would have many different values to look at (body mass, flipper length, bill length, etc.) this would make it very complicated to try to display and view but would produce a good comparison. A simple model would be looking at just the differences between penguins by the body mass, this would create an easy model to display and view but the comparison wouldn't be as strong as a complicated model. In the end there are good and bad features of both model types.

2) Phosphorus

3) -1.7 grams no other values would be added to the intercept because you aren't adding any units to the plant

4) It would be -1.7 + (0.043 x 10) + (0.192 x 30) + (-0.027 x 20) = 3.95 grams

5) The main difference between simple linear regression and a 1-way analysis of variance is the response variable. In an analysis of variance, you look for difference in mean response between groups, in linear regression you look for how the response changes as the covariates change. Also, in linear regression the covariates are continuous where in analysis of variance they are discrete set of groups.

6) The deterministic components of the model equation are x (dependent variable), y (independent variable), B (intercept)

7) The stochastic component of the model equation is e (error).