Quiz 4

1 – Why are there so many different post-hoc tests? Note: we haven’t talked about Type II error much in this class, but Type II error is failing to reject the null hypothesis when it is false and is related to power.

* None of them has a perfect Type II error rate
* Statisticians need something to do to justify their job
* **They all attempt to balance Type I and Type II error, and none of them is perfect**
* None of them has a perfect Type I error rate

2 – With a continuous X-variable, the meaning of the beta is the slope, or the amount of change in Y for each 1 unit change in X. What is the meaning of the beta when the X-variable is categorical?

* **Difference between that group and the reference group**
* Slope
* Difference between all the groups
* Average Y for that group

3 – What is the ultimate purpose of conducting ‘post-hoc tests’?

* To determine which groups are significantly different from each other
* To generate estimated differences between all the groups
* **To adjust pairwise p-values to maintain the experiment-wise error rate**
* To statistically test all pairwise comparisons

4 – If a relationship is known to be linear, how does Cottingham suggest you should distribute your treatments in an experiment?

* **Many treatment levels with few replicates**
* All replicates in two treatment levels at the extremes in natural variation
* Many treatment levels with no replicates
* Three treatment levels with replicates equally divided among them

This way, you can evaluate linearity and test for linearity if you want to.

5 – ???