MATH 3070: Statistical Report Assignment No.2

1. (Sample assignment problem.) The researchers are interested in determining whether the HEC and HGMF procedures agreed in the level of E. coli concentrations in meat samples. We should first obtain the regression relationship with HGMF serving as the explanatory variable.

The data set is available at e-Statistics. Go under the title “Worksheet Data Sets”→“E Coli Detection.”

*Study Questions*:

* 1. Do the data support that HEC and HGMF are yielding significantly different E. coli concentrations?
  2. HGMF is a measurement value of 1.2, and the corresponding HEC could be 0.9. It this expectation reasonable? How about HEC of 1.8 when HGMF shows 3.6?

1. An experiment involved 18 cancer tumors. For each tumor the weight was registered as well as the emitted radioactivity obtained with a special medical technique (scintigraphic images). Assume that we are interested in prediction of the tumor weight from the radioactivity. We want to use a linear regression model.

The data set is available at e-Statistics. Go under the title “Textbook Data Sets”→“Tumor size.”

*Study Questions:*

* 1. Describe a hypothesis test corresponding to each p-value you presented. Then present all your findings with respect to p-values.
  2. Conclude the adequacy of linear model, and discuss evidence of relationship between the radioactivity and the tumor weight.
  3. If a patient shows his radioactivity value of 8 then the expected tumor weigh could be 0.7. It this claim reasonable?