**Classwork: 4.1 Day #2 (Choosing a Model)**

Step #1: Look at the original data (Scatterplot, residual plot, r2). If a linear model is not appropriate, move on to step #2. \*

Step #2: Attempt a transformation and look at the new data (Scatterplot, residual plot, r2). If step #2 did not produce a linear transformation, move on to step #3. \*

Step #3: Attempt the other transformation and look at the data (Scatterplot, residual plot, r2).\*

\*You only need to sketch the residual plot for the model you choose. You only need to mention the issues with the models you do not choose\*

Step #4: Use the correct model to make a prediction. Either…

1. Substitute the x-value into your model and **then** un-transform.
2. Un-transform your model and **then** substitute your x-value.

Step #5: Write a sentence in **context**.

**Problem #1** The following data on x = score on a measure of test anxiety and y = exam score for a sample of n = 9 students are consistent with summary quantities given in a paper in *Psychological Reports* (1999). Higher values of x indicate higher levels of anxiety. The data follows:

x 23 14 14 0 17 20 20 15 21

y 43 59 48 77 50 52 46 51 51

Determine an appropriate model, then use the model to predict the exam score for a student with a test anxiety level of 10.

**Problem #2:** The following table contains the age and volume of several hardwood trees of the same species.



Determine an appropriate model, then use the model to predict the volume of a 180 year old tree.

**Problem #3:** The following table gives data on the year and the price of movie tickets. Use x = Year since 1948, so 1948 = 0, 1958 = 10, etc.

Determine an appropriate model, then use the model to predict the price of movie tickets in 2000.