**Bi-Variate Data Modeling Project**

**Functions, Statistics, and Trigonometry**

**Assignment:**

1.) Find data that can be modeled appropriately using any of the toolkit functions we have learned about. Once you find your data points **you must site your source.** You must have a minimum of ten data points and you must analyze your residuals to ensure your model is appropriate.

2.) Use the program CODAP to build a model for your data points and analyze the residuals to determine the appropriateness and accuracy of your model. Again, your model must be appropriate.

 3.) Use your model to make two predictions.

* In the first, create a problem to solve where you have to plug in for the independent variable and solve for the dependent variable. Then solve the problem showing all of the steps that lead to your conclusion. Write the conclusion in a complete sentence.
* In the second, create a problem to solve where you have to plug in for the dependent variable and solve for the independent variable. Then solve the problem showing all of the steps that lead to your conclusion. Write the conclusion in a complete sentence.

4.) Using Canva, build a poster that is a **one page** analysis of your data. The following components must be on the presented page.

* Data Values
* Independent and Dependent variable assignment
* Scatterplot of the data with the model you have created over the scatterplot (a screenshot directly from CODAP works)
* Final Model
* Residual Plot
* Analysis of the residuals to determine accuracy and appropriateness of your model in complete sentences with support for your conclusions.
* Characteristics of your model’s graph. Reasonable Domain, Reasonable Range, Vertex, Asymptotes, Intervals of Increasing, Intervals of Decreasing, etc.
* Two problems from step 3.
* **A Selfie Picture of you in the bottom right hand corner.**

**Grading Rubric**

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| **Criteria** | **Points Possible** | **Points Earned**  |
| **Poster Elements*** Data Values (minimum of 10)
* Source of the data in MLA format
* Model overlaid over data values
* Assignment of Independent and Dependent Variables
* Residual Plot
* Analysis of Bivariate Data (Model, appropriateness, and accuracy) in complete sentences.
* Graph characteristics that apply (Reasonable Domain, Reasonable Range, Vertex, Asymptotes, Intervals of Increasing, Intervals of Decreasing, etc.)
* Two Prediction Problems
 | 20 |  |
| Model is appropriate and the conclusion is supported by the residuals plot. Conclusion of model appropriateness is given in a complete sentence. Conclusions are complete and logical.  | 4  |  |
| Model accuracy is analyzed with supporting evidence. Conclusion of model accuracy is given in a complete sentence. Conclusions are complete and logical.  | 4  |  |
| Two prediction problems are created appropriate to the assigned task. Solutions to each problem demonstrate clear understanding of working with the created model to make predictions. Conclusions for each problem have supporting procedural work with all of the steps accurately outlined. Conclusion is written in a complete sentence.  | 8  |  |
| Final Poster is exceptional work and demonstrates full mastery of the content and could be shared with a broader audience. Picture of model creator is provided in the bottom right hand corner.  | 4 |  |