To: Professor Yuce

Applied Mathematics

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Subject: Least square curve fitting

Date: 2/20/20

Summary:

a = 0.19

![A close up of a map

Description automatically generated]()

For this model, we see that the circles represent the linear model, the squares represent the quadratic model, and the triangles represent the cubic model. For the cubic model, we get the best fit as 96 percent of our data can be explained by our cubic model. Our quadratic model can explain 59 percent of our data. Lastly, the linear model can explain 50 percent of our model. For all three models we strongly reject that our coefficients are equal to zero. Along with the slope.

a = 1.1

![A close up of a map

Description automatically generated]()

For this model, we see that the circles represent the linear model, the squares represent the quadratic model, and the triangles represent the cubic model. For the cubic model, we get the best fit as 49 percent of our data can be explained by our cubic model. Our quadratic model can explain 27 percent of our data. Lastly, the linear model can explain 22 percent of our model. For all three models we strongly reject that our coefficients are equal to zero. Along with the slope.

3a: Yes the least squares can find the cubic in the presence of noise if the a score is low enough

3b: Yes the noise has a negative effect on our model.

3c: No, we see that in both examples the cubic model was the best fit.