**Name:**

**Kerberos:**

Problem Set 5: Modeling Temperature Change

**Problem 4**

**Plot 4A:** *Average Daily Temp for Boston on 2/12 (1961-2016)*

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**Plot 4B:** *Average Yearly Temp for Boston (1961-2016)*

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**4.1** What difference does choosing a specific day to plot the data versus calculating the yearly average have on the goodness of fit of the model? Interpret the results.

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**4.2** Why do you think these graphs are so noisy?

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**Problem 5**

**Plot 5.A** *Increasing Interval (Los Angeles, length=30)*

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**5.1** What was the start and end year for your window? What was the slope?

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**Plot 5.B** *Decreasing Interval (Los Angeles, length=30)*

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**5.2** What was the start and end year for your window? What was the slope?

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**5.3** Considering *both* plots, what conclusions might you make with respect to how temperature is changing over time?

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**Problem 6**

**Plot 6.A** *Training Data, Degree 2*

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**Plot 6.B** *Training Data, Degree 15*

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**6.1** How do these models compare to each other in terms of R^2 and fitting the data?

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**Plot 6.C** *Test Data, Degree 2*

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**Plot 6.D** *Test Data, Degree 15*

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**6.4** Which model performed the best? Which model performed the worst? Is this different from the training performance in the previous section? Why?

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**6.5** If we had generated the models using the data from Problem 4B (i.e. the average annual temperature of Boston) instead of the national annual average over the 22 cities, how would the prediction results on the national data have changed?

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