**Homework 2**

**Due Date 10/02/2018**

Q1. Chapter 5 Exercise 1

Q2. Chapter 5 Exercise 2

Q3. Chapter 5 Exercise 3

Q4. Chapter 5 Exercise 8

Q5. Suppose we want to compute 10-Fold Cross-Validation error on 100 training examples. We need to compute error  times, and the Cross-Validation error is the average of the errors. To compute each error, we need to build a model with data of size and test the model on the data of size . What are the appropriate numbers for , and ?

Q6. You want to fit a cubic spline to a large dataset and need to determine the number of knots to

use. Below is a chart of four statistics from this model valued for various numbers of knots:



Determine which set of statistics below best describes each line and why?

A. W is Test MSE; X is Variance; Y is Squared Bias; Z is Train MSE

B. W is Variance; X is Squared Bias; Y is Test MSE; Z is Train MSE

C. W is Train MSE; X is Test MSE; Y is Variance; Z is Squared Bias

D. W is Test MSE; X is Train MSE; Y is Variance; Z is Squared Bias

E. W is Variance; X is Train; MSE Y is Test MSE; Z is Squared Bias