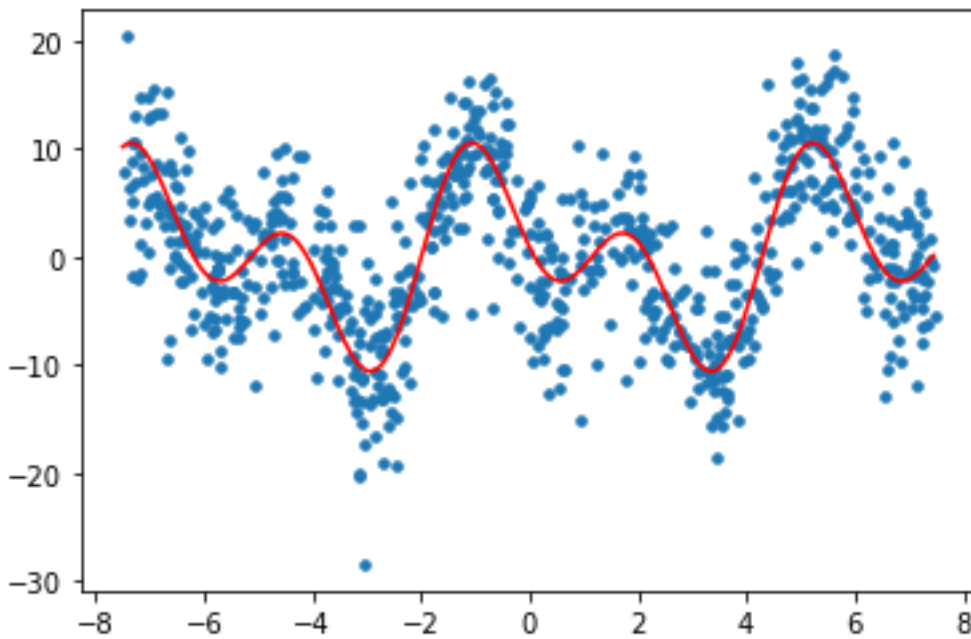
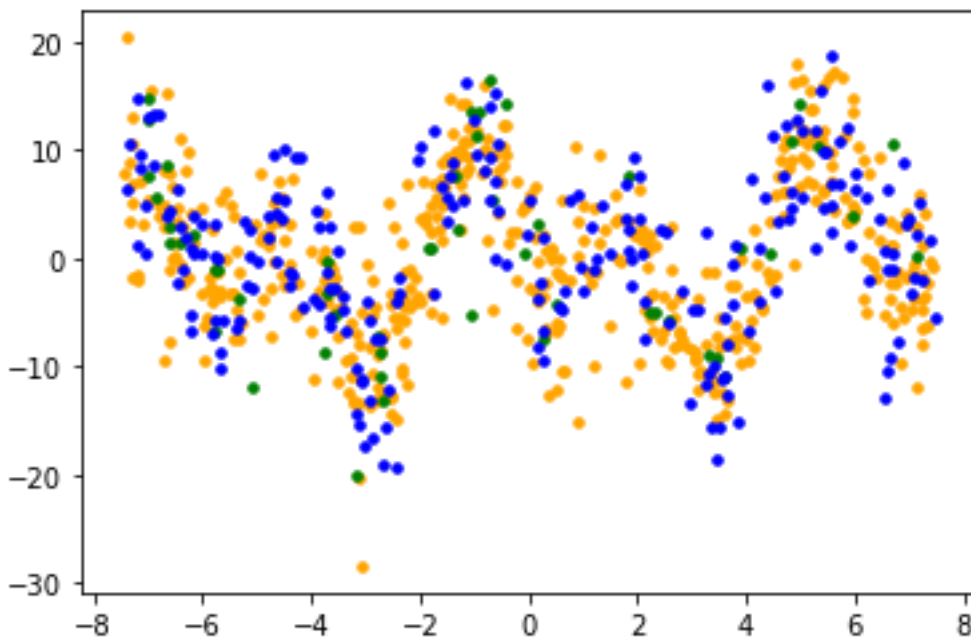


Assignment 1

Plot the raw data as well as the true function (without noise)

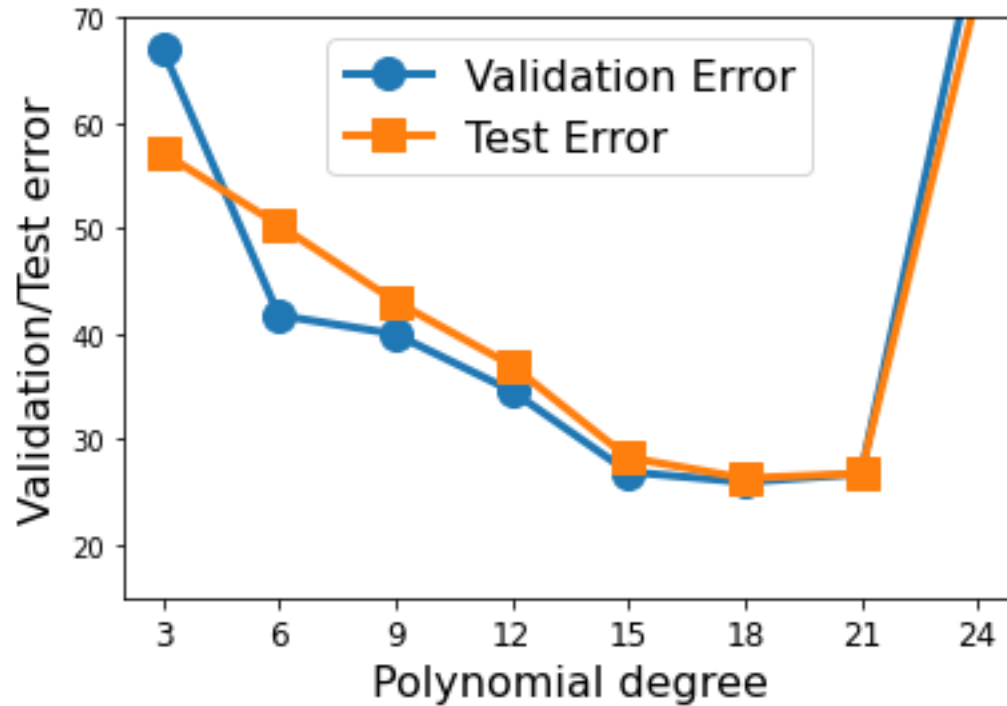


Scatter the train data (60%, orange), validation data (10%, green), test data (30%, blue)

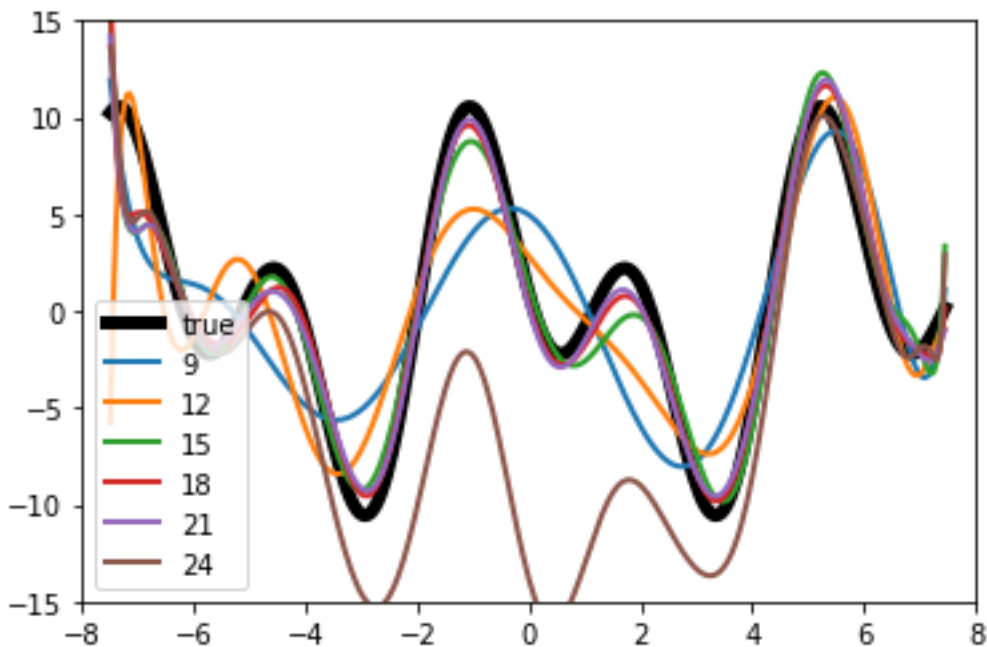


1. **Regression with Polynomial Basis Functions**

1.d. Below result shows the degree vs. validation error/test error. When degree is 18, we get a best result.



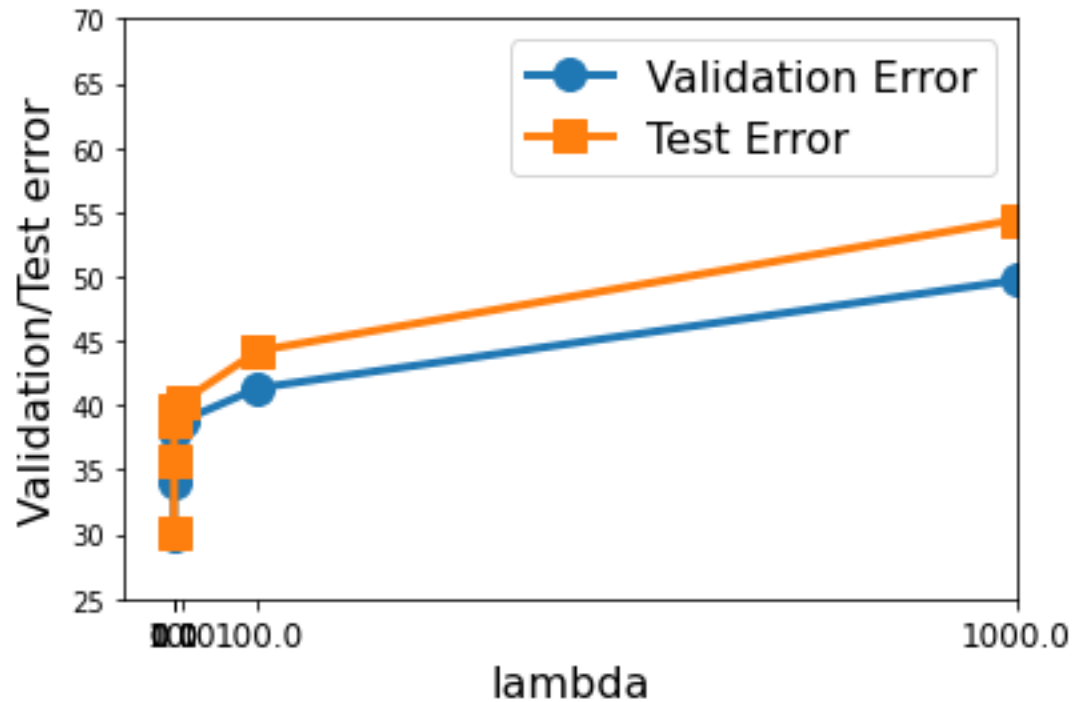
visualize each learned model, and true model.



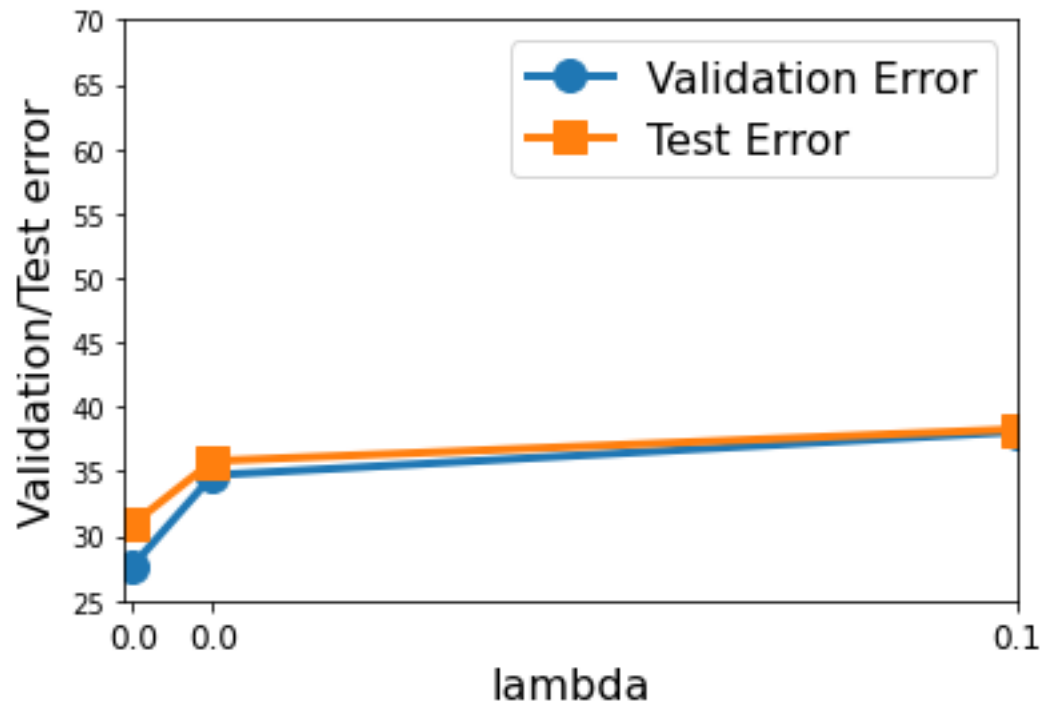
2. **Regression with Radial Basis Functions**

2.c. Below result shows lambda vs. validation error/test error. When lambda is 0.001, we get a best result.

Full scale, Lambda: 0.001 ~ 1000:



From smaller scale, we can see result with less overlap. Lambda: 0.001 ~ 0.1:



2.d. Plot the learned models as well as the true model. With the increase of the lambda, the oscillation becomes smaller.

