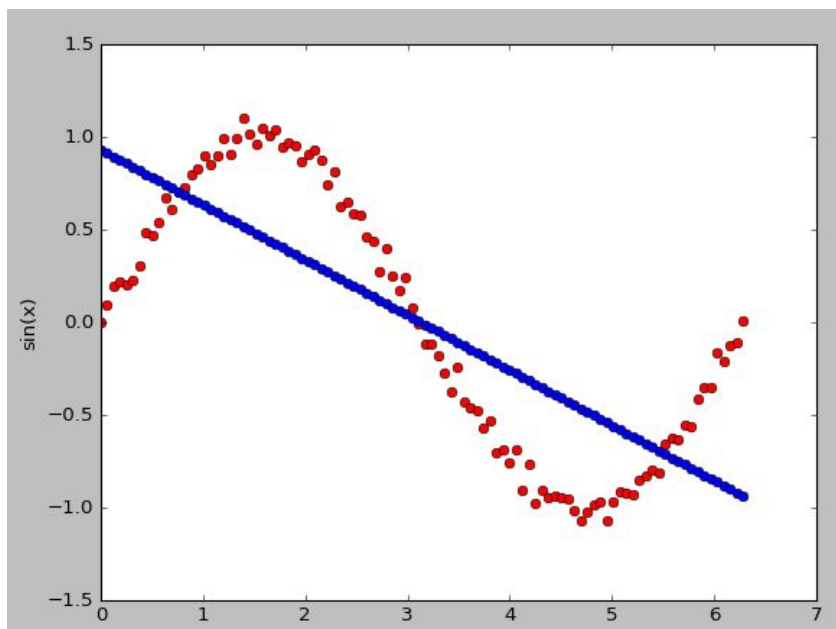
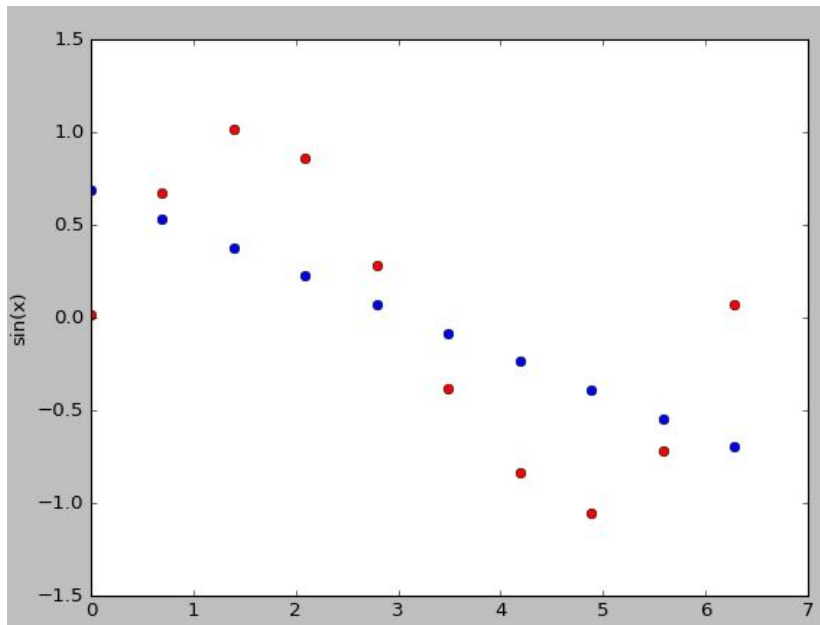


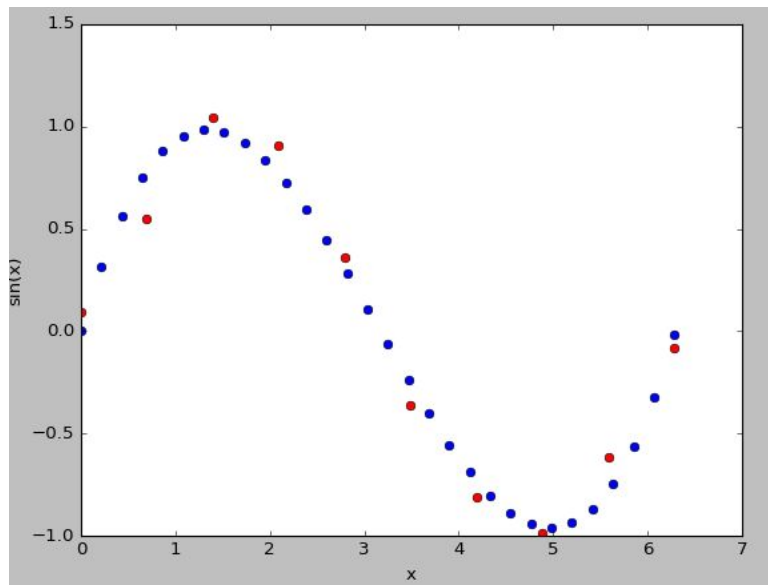
Programming Assignment

1) Vanilla Regression: Vanilla regression gives us a very poor fit. We need more parameters

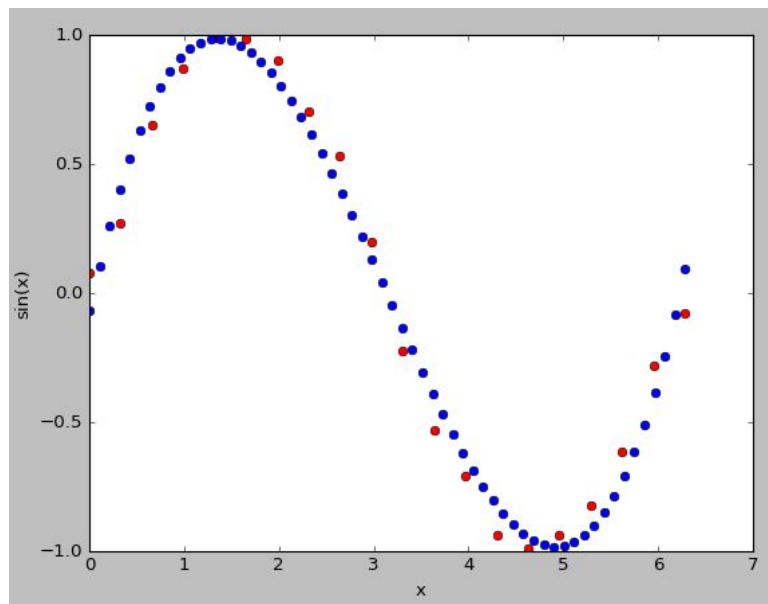


2) Linear Regression using a polynomial basis function

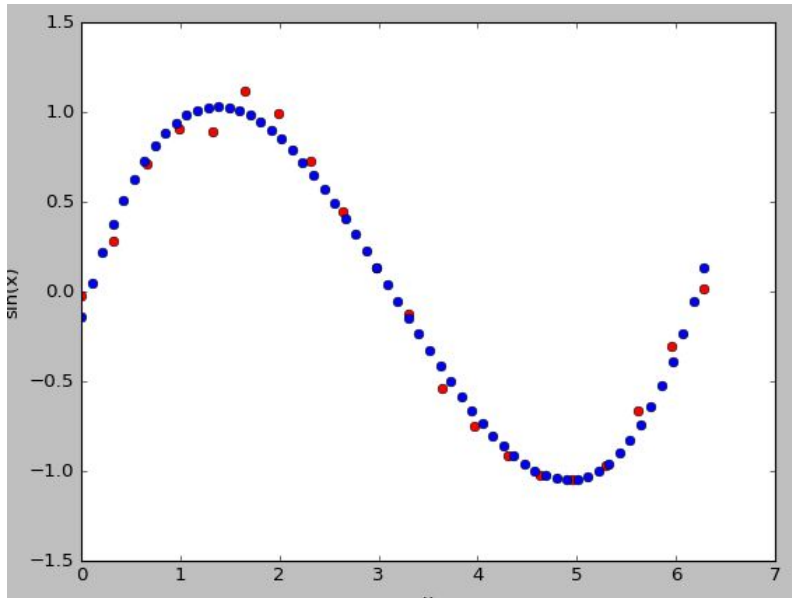
Polynomial degree 3, training samples 10



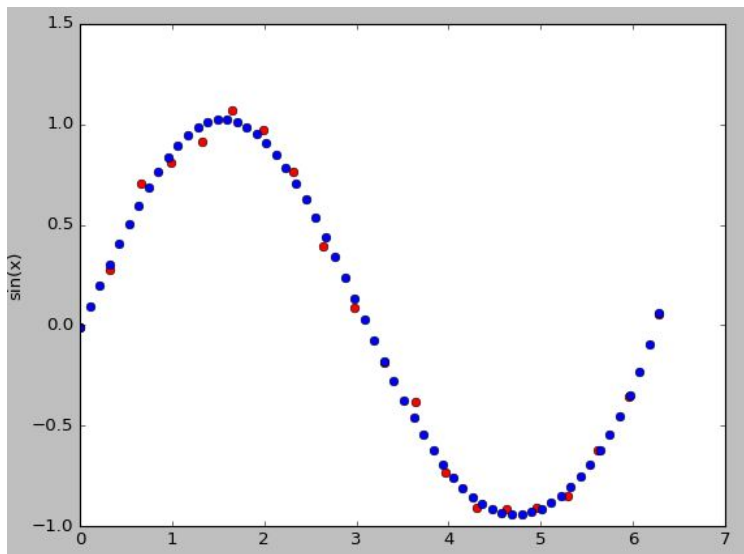
Polynomial degree 3, training samples 20 ---> the fitting appears to have improved



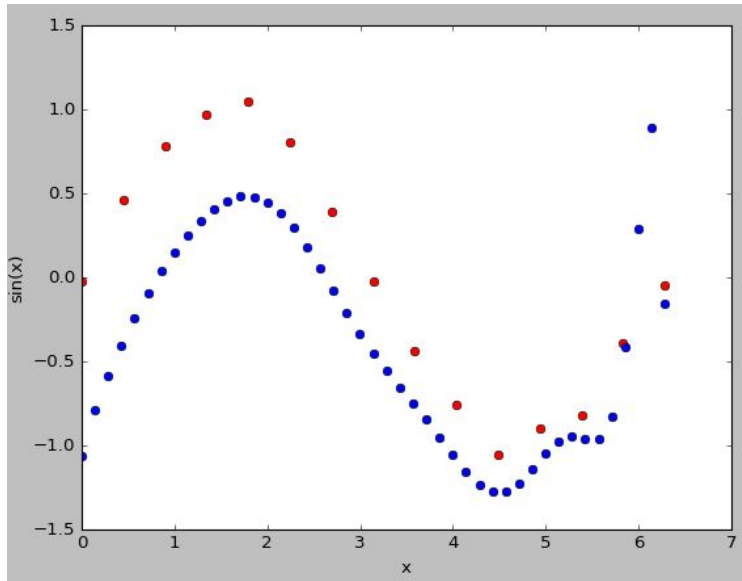
Polynomial degree 4, training samples 20 ---> the fitting is improving



Polynomial degree 7, training samples 20 ---> The fitting appears to have improved.

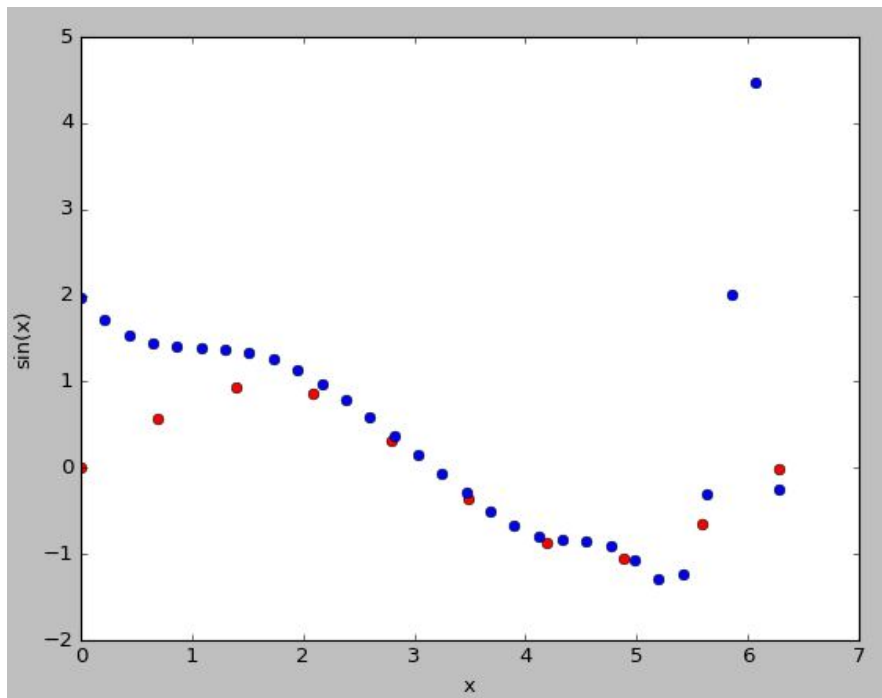


Polynomial degree 10, training samples 20 ----> Signs of overfitting

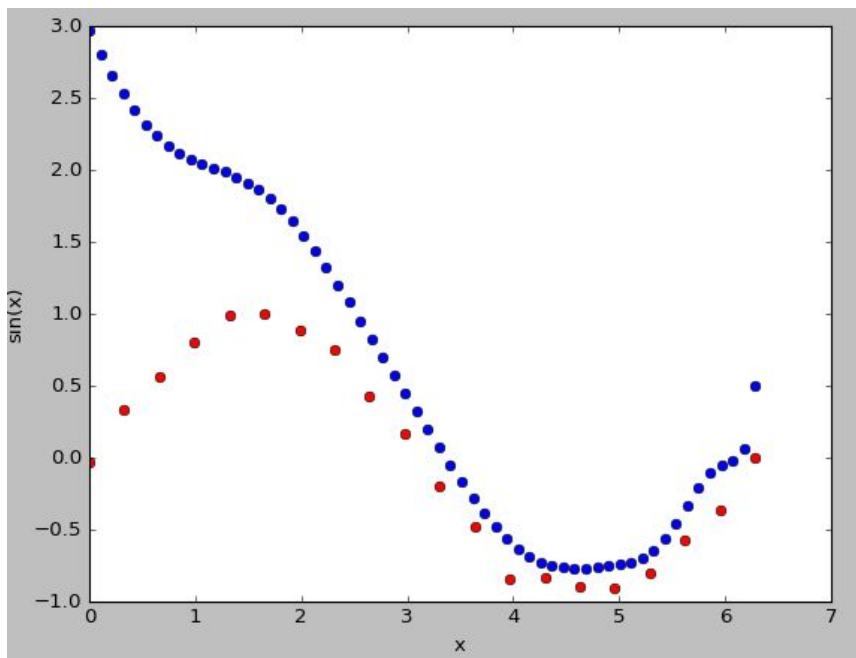


3) L2 regularized linear regression with polynomial basis function

Lambda = 0.05, degree = 15, training samples = 10



Lambda = 0.8, degree = 15 , training samples increased to 20 - still a bad fit



Lambda = 0.01, degree = 15 training samples increased to 400 ---> there is considerable improvement

