

Result from Problem 1

```
>>> mymeasure(100,50,100)
```

The execution time on matmul is: 0.000241

The execution time on mymult is: 0.338340

The magnitude is :1.58419046986e-26

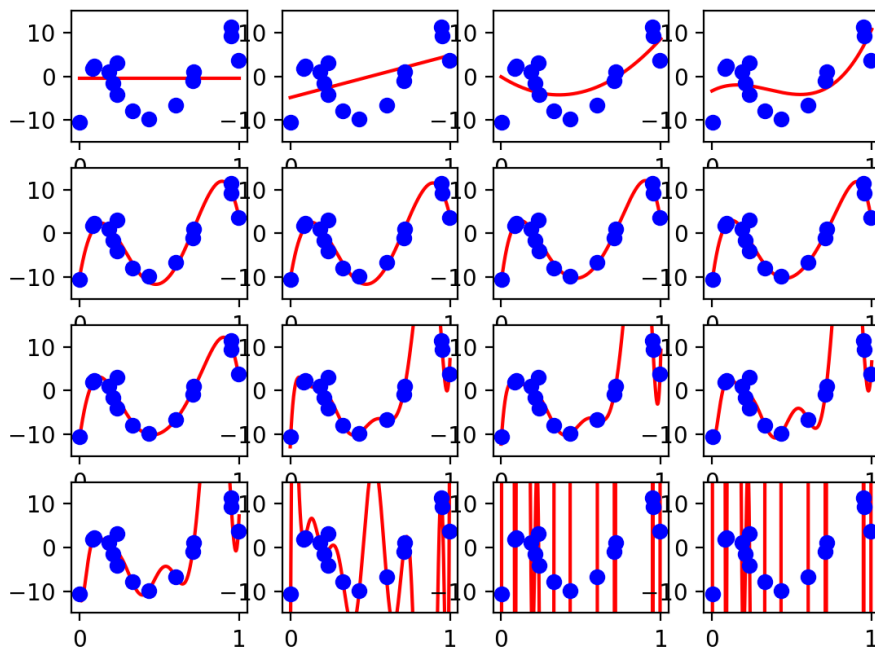
```
>>> mymeasure(1000,1000,1000)
```

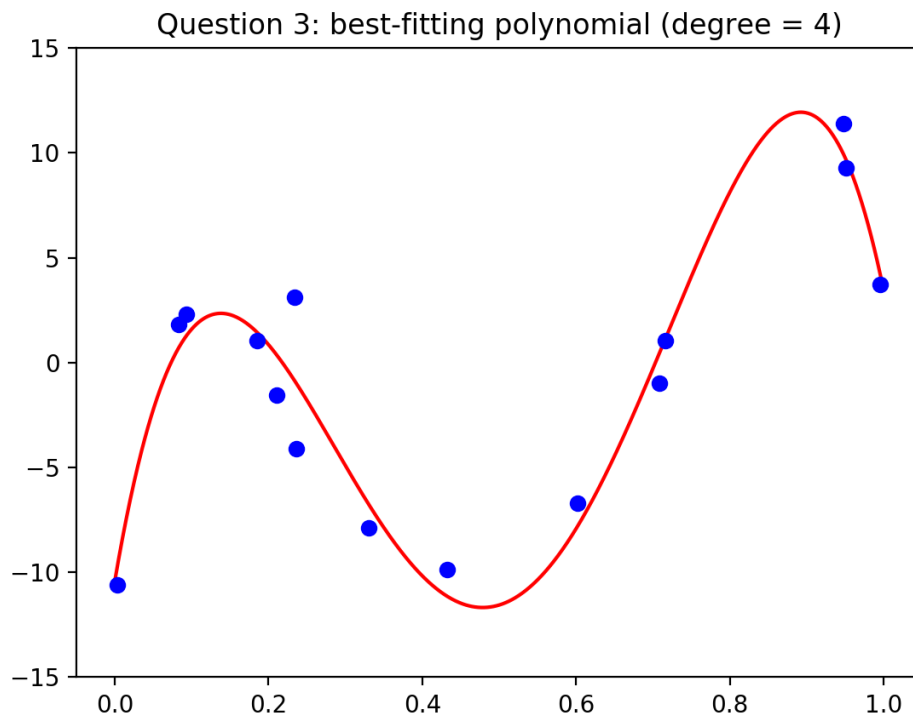
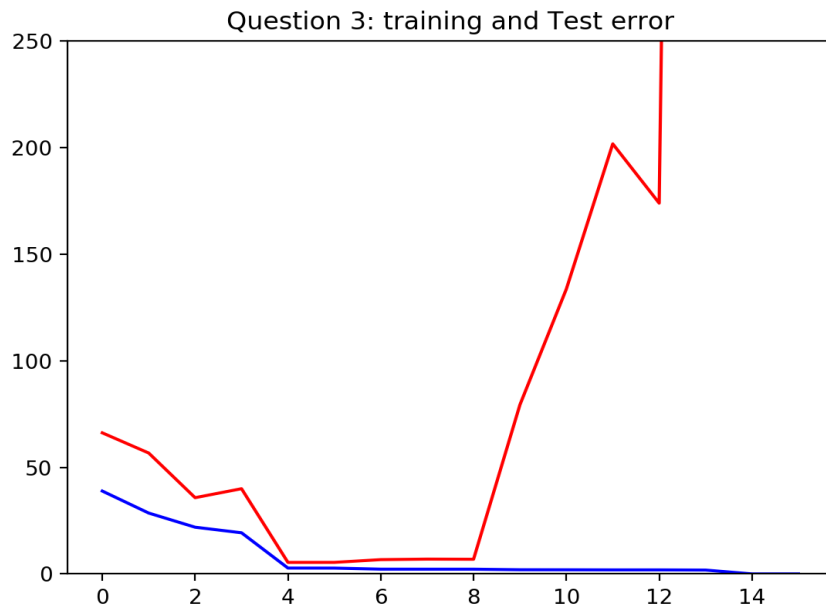
The execution time on matmul is: 0.040457

The execution time on mymult is: 695.534565

The magnitude is :4.12504744814e-20

Result and graphs from Problem





The best fit M-value is 4

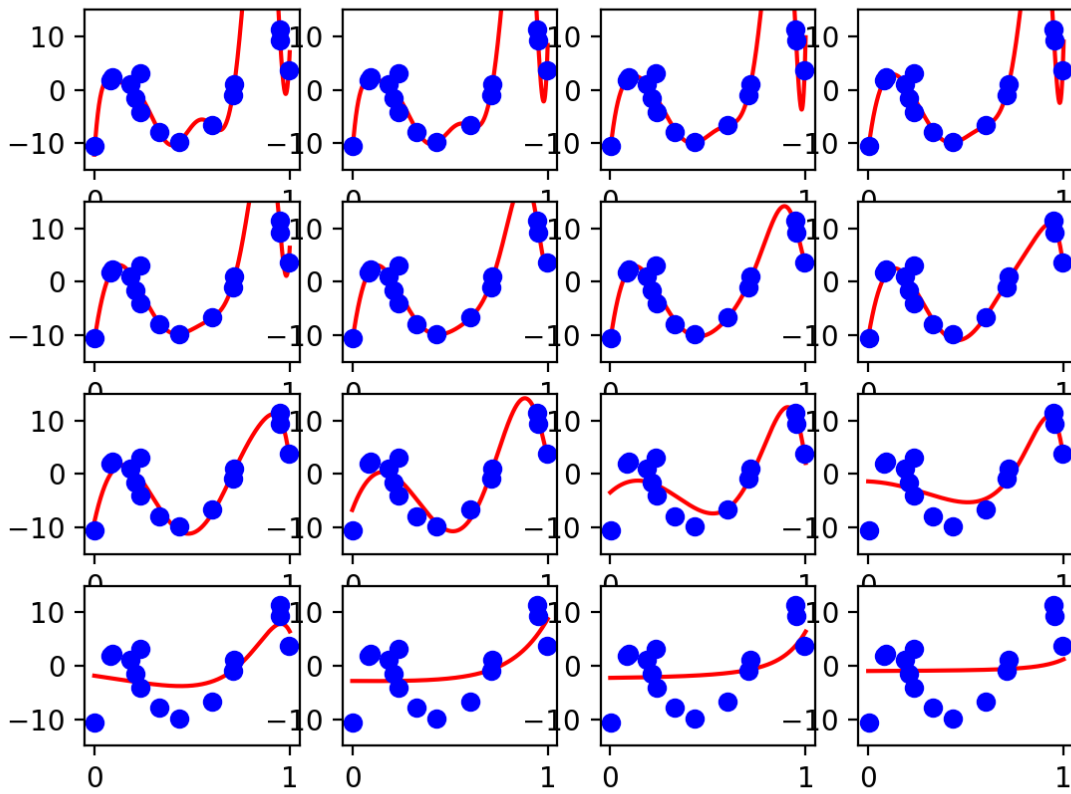
The best fit w is:

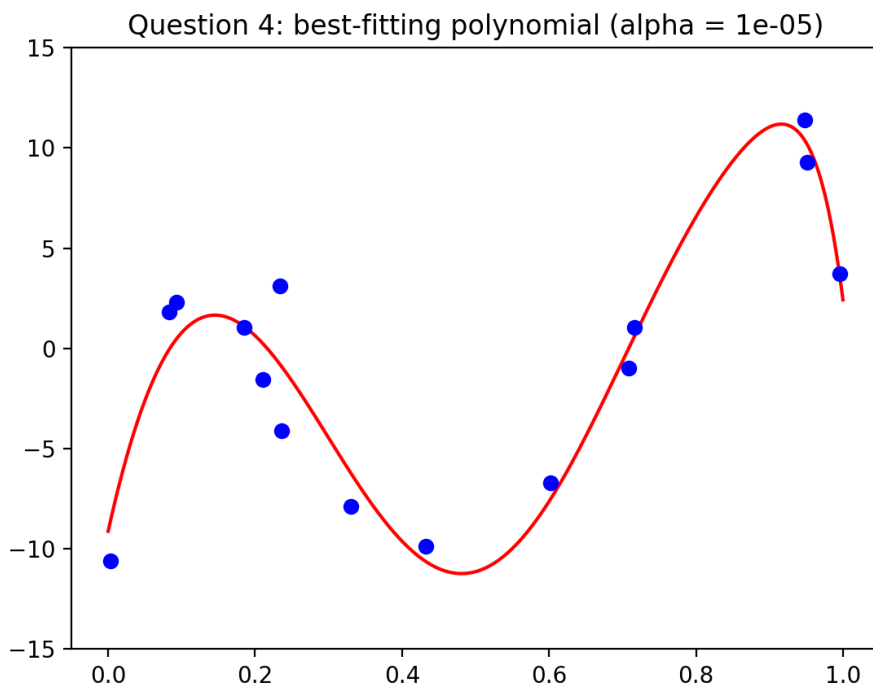
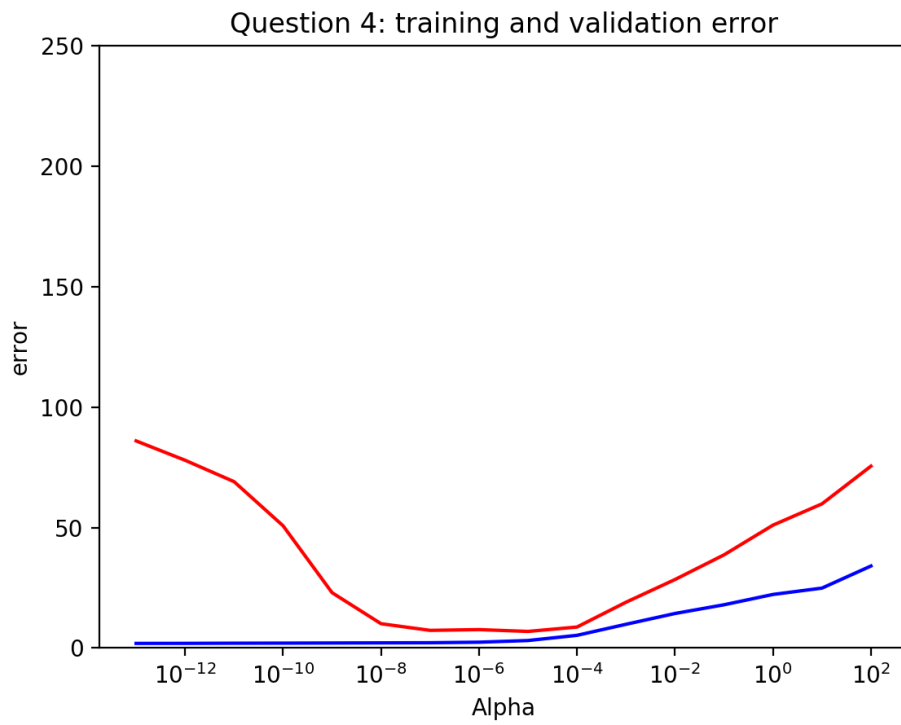
[-10.413885 215.08112969 -1124.27527806 1835.00031655 -911.90851798]

The optimal Training Error is:2.737770

The optimal Test Error is:5.384869

Problem4 graphs and returns





The optimal values of alpha is $1e-05$

optimal w is

[-9.12300038 165.49251116 -740.35613558 730.11816986 312.48258072
-141.98364005 -278.6555888 -211.72427491 -78.32832282 41.59620664
114.99534499 135.46323063 108.96736557 45.81490044 -43.30993556
-149.02952251]

Training error is 3.09684373414

validation errors is 6.87766585414

test errors is 11.2916315024

problem 5:

I don't know