

Baby Homework 3 due October 5th

Numerical Analysis, Fall 2016

Please show your work. For the programming exercises also hand in your Matlab codes and outputs. (You can use the matlab function *diary* to copy your command window output.)

All students:

1. Use appropriate Lagrange interpolating polynomials of degrees one, two, and three to approximate $f(8.4)$ if $f(8.1) = 16.94410$, $f(8.3) = 17.56492$, $f(8.6) = 18.50515$, $f(8.7) = 18.82091$. Make sure to report both polynomials you build and the corresponding numerical values $f(8.4)$.

2. Chapter 8: Exercises 1, 3, 4(a).

Note: In Exercise 1(a) you could use any of covered methods to fit a polynomial of degree 5. You could use a MATLAB function *polyfit*, but if you try it to fit a polynomial of degree 5 for the data, you will get a message: “Polynomial is badly conditioned”. You may use it to fit a degree 4 polynomial instead, which will do fine, but think about another method to fit a polynomial of degree 5 (you can even solve as a least squares problem if you are familiar with it, or use the Lagrange form and its modifications or the Newton form. Thus, you have some freedom here.)