**Computer Graphics Homework**

Week 2

Section 4

* Reflections on Your First Open GL program

Week 3

Section 5.1

* Answer/Reflections on PyPoints

Section 5.2

* Answer/Reflections on PlottingFunctions

Week 4

* Cameron’s MATLAB Homework

Section 5.3

* P.51, do the Lissajous Curve
* P. 53 #1
* P. 56 #6, #7
* P. 57 #9
* Other Reflections or Comments

Keyboard Control

* Add keyboard control to one of your old programs
* (optional) Reflections on the Advanced Code for the Week

Week 5

* Add the reshape function to one of your programs

Section 5.3

* Modify PyPolar.py code to do the following problems (and it might be fun to modify the code so that you can watch it being drawn.)
  + P. 92 #8
  + P. 93 #11
  + P. 94 #14
  + Other reflections or comments

Section 6.2

* + P. 107 #1, #2 (can you show me a screen shot?) Try something like width = 700

height = 500, and axrng = 30.0 to test it.

* + P. 109 #7 (easy, just looks cool!)
  + P.125 #6

Week 6

Section 7.5

* + Run PyNewton.py
  + P. 193 #1
  + P. 195 #6
  + Note: **glColor3ub(n\*c1,n\*c2,n\*c3)** uses parameters 0-255

Section 7.6

* + You may want to experiment with code from PyInverseJulia.py

Section 7.7

* + You may want to experiment with code from PyMandelBrot
  + Look at the Mouse Handling routine
  + Def mouse (button, state, x, y) on page 225, read description on p. 230
  + Don’t forget about the glutMouseFunc(mouse) in the main routine. (It’s just like the keyboard and drawing routines we already use.

**Extra Challenge!**

* Only for those interested in debugging code. The PyNewtChoose.py file has some bugs. Pressing 1 – 9 should give a different beautiful fractal image. Pressing some of the numbers cause the program to crash or display incorrect results. Can you correct some of them? Pressing 6 causes a crash, 2 – looks wrong to me, 8 causes a crash, 9 is just a blank black screen. Can you explain and correct the code? Email me your code corrections.

Section 8.1

* + Try animating some other figures. Can you animate a square block?
  + Can you make the block spin while it is bouncing?
  + Try to move the red bouncing ball to the location where you click the mouse. Can you do it? Pay special attention to the coordinate system used in the window, and the x,y values returned by the mouse click.

Section 8.3

* + Try animating something like Alex’s Colors and Blocks. Make something entertaining for a baby!
  + Experiment with 2body. Explain:
    - gluPerspective(fov, asp\_ratio, near\_clipping\_plane, far\_clipping\_plane)
    - gluLookAt(lookat\_x, lookat\_y, lookat\_z, 0.0, 0.0, 0.0, 0.0, 1.0, 0.0)
    - Where should they come in a program - after what glMatrixMode()?