Lab 8 expectations:

(1): Give the slope of the third line segment, and SHOW YOUR WORK!

(2): (Graph needed) Compute the slopes of the first two Euler lines, and give the answers. Confirm that the slope is in fact the average of the two Euler slopes. Then find the next point, and see that it agrees with the graph.

(3): (Graph needed) Give all three slopes and SHOW YOUR WORK!

(4): (Graph needed) Give all three slopes and SHOW YOUR WORK!

Note: you can put the graphs of 3, 4 and the 'actual' solution on the same page

(5): List the max. errors.

(6): **(Graph needed)** Why are there zig-zags? (Remember to mention slope in your discussion.) What is the significance of the line y=3?

(7): (**Graph needed**, with both the good and bad step size lines along with the actual solution) Why is this such a bad approximation (similar explanation as in #6)? Does decreasing the step size help?

(8): (**Graph needed**, with both the good and bad step size lines along with the actual solution) Answer same questions as in #7. Make sure to tell me what step size you found that will make a good approximation.

(9): (**Graph needed**, that includes all lines in one general picture) List all the maximum errors for me.

(10): Answer all questions in the form of a paragraph or two.

(11): (i) Verify that the given y(t) is a solution to the Diff. Equ.

(ii) Find the largest h of the correct form such that the error is smaller than 10^{-2} and fill in the table.

(iii) Using rk4, find the largest h of the correct form such that the error is smaller than .0001. Comment.