**Aero 304 Project 1 Pseudocode**

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1. Use equations (2) and (3) as a functions ẍ and ÿ. Let these equations be known as fx and fy which we will use for the RKN algorithm.
   1. is fx.
   2. is fy.
2. Also make functions for P1 and P2 which are both dependent on x, y and µ.
3. Declare our time step variable h and then take T/h to find the total number of steps need to calculate.
4. Using an RKN algorithm, we can find xn+1 and ẋn+1 through the fx function with known xn and ẋn Values.
5. Do step 4 but instead of X values but with the y values.
6. With the new x & y values save them to a matrix to be plotted later.
7. Replace the old n variables to the new values of the n+1.
8. Kept repeat steps 3-7 for each time step and stop once all have been calculated and solved for.
9. Then Plot yN(t) vs xN(t) figure, then a figure convert yN(t) vs xN(t) to inertial frame coordinates XN(t) and YN(t)
10. Then plot departure velocity vs time and departure position vs time. Also have to plot departure vs linearized Position figure and a departure vs linearized velocity plot

The code for parts d & e would be pretty much identical except for using the corresponding mat file from canvas.