Homework 9
Due: 3/22/2018

- Assignments are due at the beginning of class on the due date.
- Any Matlab/R files are to be submitted as .m or .R files via Moodle (with a corresponding run/driver file if necessary).
- Each file must be uploaded individually. Zipped files will not be graded.
- Show all work and provide discussion where needed in order to receive full credit.

A mass weighing 2 pounds stretches a spring 1/2 a foot. At $t = 0$ the mass is released from a point 2/3 of a foot below the equilibrium position with an upward velocity of $\frac{4}{3}$ ft/s.

1. Write the differential equation that describes the scenario with the corresponding initial conditions. Convert the system to a first order system of DEs. (Note: In the final equation, the units of weight m must be converted to units of mass, slugs.)
2. Use both Euler's Method and the RK4 method to simulate the equation of motion, $x(t)$.