ME 430/ME 430H/ECE 451
Fall 2016
Due in Class October 26
Computer Assignment 1

- Include a printout of your code, any related figures, and any handwritten work.
- You do NOT need to email your code to the instructors.

1: Plot the step responses for each of the following Transfer Functions (Hint: use the "step" function and "stepinfo" functions in Matlab). **Label the rise time, 2% settling time, peak time and percent overshoot on the plots. Also confirm these values using the methods taught in class (show your work).**

1) $T(s) = \frac{16}{s^2+3s+16}$

2) $T(s) = \frac{0.04}{s^2+0.02s+0.04}$

3) $T(s) = \frac{(s+2.1)}{(s+2)(s^2+s+5)}$

2: For the figure below, let M = 1, b = 2 and K = 5. **Derive the transfer function by hand, and plot the step response in Matlab. Find the rise time, 2% settling time, peak time and percent overshoot using Matlab and label them on the plot.** (you may neglect any gravitational forces).