**EE 308 − Homework 11**

Due Apr. 20, 2012

1. The Lecture Notes for Lecture 32 (April 16) gave some MATLAB code which simulated the closed-loop integral control of a motor. The motor characteristics in the Notes were different than those of the motor you will use in the lab. Redo the simulation using characteristics which are closer to the motor you will use. Use the results from Part 1 of Lab 4 for the slope and y-intercept of the motor for final speed vs. duty cycle. Assume the time constant of the motor is about 100 ms. Use the MATLAB simulation to find a value for $k$ which gives a "good" response — i.e., a response where the motor gets to the final speed fairly quickly, but without more than about 10% overshoot.