Homework Assignment #7
Due by online submission Wednesday 10/14/2015 (Thursday at 9am)

1. Fall 2013 midterm, questions 1, 2, 4, 5, 6cd, 7, 8
2. Fall 2014 midterm, questions 1, 2, 4
3. For the structure in problem 2 (and figure 3) of homework 6,
   A. After the structure has pulled in, how low must the voltage go before the structure pulls back out again?
   B. Sketch the shape of the displacement vs. voltage curve, showing the bistable region
4. [247a] If you used a capacitive sensing system to measure the displacement of the structure in the previous problem, you could design a control system to supply just the right voltage to the structure to control the deflection smoothly across the entire gap with no pull-in. Sketch what the voltage would look like as a function of the displacement. Roughly what bandwidth would your controller need (how fast would it need to be able to measure the position, and control the voltage)?