EE331 — Homework #4 / Due Wednesday, Feb. 12, 2020 **at the beginning of class**

Note that you need to show your work on a Smith chart for the Smith chart problems (2, 3, and 4), and you need to turn the charts in as part of your homework. A Smith chart is available on our homework web page.

Note, also, that Exam #1 includes this homework, but it won't be graded before your exam. Solutions will be posted on 2.12.20, but if you want to compare your answers with those of the solutions, then you should scan your homework. Free scanning apps are available for your smart phone (the TA uses one), or you can just take pictures.

1. The Pullman NWPR FM station broadcasts at 97.1 MHz. Suppose they use a 75-Ω transmission line to feed the broadcast antenna. If the antenna impedance is 50 Ω, (a) find the length and characteristic impedance for a quarter-wave transformer to match the antenna to the line. Assume the phase velocity is the speed of light. (b) What fraction of the power is delivered to the antenna with the original line relative to the power delivered to it with the matched line?

2. Ch. 11, Prob. 11.40.

3. Ch. 11, Prob. 11.43 (solution in back of book for part (d) is wrong).

4. Ch. 11, Prob. 11.50.