

## EP440: ENGINEERING ELECTROMAGNETICS

Fall 2014, J. B. Snively

**Homework #7:** Due 11/3/2014 at 5:00!

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**For this assignment... Work out the following problems on separate sheets. Staple all, including this front page, for your submission.**

**1)** Zahn Problem P.6-1 a, b, c.

*Hint: Assume symmetry, and integrate over only a half-circle. You'll understand what I mean once you get the problem set up!*

**2)** Zahn Problem P.6-10. *Note how remarkably similar this integral is!*

**3)** Find an approximate solution to the inductance of a toroid by accounting for the magnetic field energy contained within, assuming that the field is consistent throughout. (a) Compare with the Zahn problem above, and (b) confirm that the same expression can be obtained using conventional (flux linkage) methods under the same assumption.