Individual Homework #7: Due November 2, 2016

Please **read** Section 6.1, starting with the subsection "Electrical Energy" on page 342; also **read** Section 6.2, *skipping* the following parts: (a) everything from the subsection "Calculating Distance Traveled" on page 352 through the end of page 358; and (b) the subsection "Summation Notation" beginning on page 362.

Please **do** exercises 6, 7a, 9, and 10ab, Section 6.1 (pp. 347–349); and exercises 2, 3, 4ab, 7a, 10, and 11, Section 6.2 (pp. 364–367).

NOTES:

(a) For exercises 9 and 10, page 349, you should recall that, if force is constant, then work = force times distance. Also, for exercise 10, note that "weight" means the same thing as "force."

(b) **HINT** for exercise 10a, page 349: When the anchor has been lifted x feet above its initial position, the part of the chain that is *hanging* has length $30 - x$ feet.

(c) Exercise 2, page 364 is similar to the estimate of energy we did in class on March 12. See also pages 342-343 of the text. (Of course, the power function for this exercise is different from the function graphed in our notes, or in the text.)

(d) Exercises 4, 7, 10, and 11 in Section 6.2 refer to a program called RIEMANN. Wherever this program is called for, you will need to use the MATLAB program RIEMANN.m, which can be found on our MATLAB web page. (You should *not* need any Matlab code for exercises 2 and 3 in Section 6.2 – though a calculator might help.) Please make sure you modify the quantities f(x), a, b, and n specified in RIEMANN.m to suit each exercise at hand.

For these exercises, you can *ignore* any questions about "How many digits...?" or "How many decimal points...?"

(e) Wherever $n = 40{,}000$ is requested, use $n = 10{,}000$ instead. (Even $n = 10{,}000$ takes a little while, but if you're patient, it should work after a minute or so.)

(f) You might want to do exercises 10 and 11 in Section 6.2 *before* you do exercise 7a, because exercise 7a asks you to modify RIEMANN.m to do right endpoint Riemann sums, and you'll then have to modify it *back* to do exercises 10 and 11, unless you've done these exercises first.

(g) For exercise 7a page 366, please supply, with your HW, a copy of the modified Matlab code you used to calculate right endpoint Riemann sums.