Individual Homework #4: Due in class Friday, February 15

Again: for this and all homework assignments, please adhere to "Homework Assignment Guidelines" link under the "General Information" header of our course page.

Assignment: Please read Sections 2.4 and 2.5 in the text, and do, and hand in, the following exercises from these sections.

(a) **Section 2.4, Part 1: Chain rule, first version** (pages 96–97): Exercises 1, 3, 4, 5.

(b) **Section 2.4, Part 2: Chain rule, second version** (pages 97–98): Exercises 6abdf, 7ac, 9.

(c) **Section 2.4, Part 3: Particular values** (page 98): Exercises 10, 11, 13.

(d) **Section 2.5, Part 1: Finding derivatives** (pages 107–109): Exercises 1acehijor, 2bdfhk, 4, 6, 7.

(e) **Section 2.5, Part 3: Second derivatives** (page 112): Exercise 16abd.

SOME HINTS AND NOTES for exercises 6 and 7, Section 2.5, Part 1. Your strategy should be to first model the quantities in question with an equation. See Example 2.5.1(d) in the text for the general idea.

For example, consider exercise 6, which is asking for information about per capita energy consumption. "Per capita" means per person. So per capita energy consumption, call it $C(t)$, would equal total energy consumption, call it $E(t)$, divided by population, call it $P(t)$:

$$C(t) = \frac{E(t)}{P(t)}.$$

Further, you can differentiate, using an appropriate rule, to get a formula for $C'(t)$. *Then you can plug in the appropriate value of t.*