Written Assignment 10 (due 3/29/13 by end of class)

Exercise 1: (a) Let (X, d) be a metric space and consider **the distance from** x **to** A as in the definition on page 175 of the text. Carefully show that if A is compact, then $d(x, A) = \min\{d(x, a) | a \in A\}$. (Note that it now says "min" instead of "inf").

Section 27: # 1, 6(c,d,e)

As a folloup to Exercise 1, consider the space of all compact subsets of a metric space (X, d). It turns out that this space is metrizable, with metric called the Hausdorff metric (not related to the Hausdorff property, just the same mathematician). Exercise 1 is crucial to the construction of the Hausdorff metric. If you'd like to know more, let me know and we can either discuss it or make it a presentation problem.