Written Assignment 7 (due 2/22/13 by end of class)

Exercise 1: Show that the function

$$d(\mathbf{x}, \mathbf{y}) = |x_1 - y_1| + |x_2 - y_2| + \cdots + |x_n - y_n|$$

defines a metric on $\mathbb{R}^n$. Then show that this metric induces the usual topology on $\mathbb{R}^n$.

Section 20: # 3(a), 6(a,c)

Section 21: # 1, 6