Pins: 100
Your Last Names

Math 703   Due Date: Fri. 9/25 at 11:59pm. HW: MS06

You learn a lot talking math with others. Thus you are **strongly** encouraged to work in groups (up to size 17) on homework. A group is to come to an agreement of the finished paper. Over Blackboard, ONE group member (e.g., Bella) should submit the finished paper while each of the other group members (as so that I can return a commented graded paper to you) should just pull up the assignment on Blackboard and write a note in the white `Comment` box that, e.g., Bella submitted my paper.

Metric Space Exercise 6. Variant of 2.1.45.16 (p. 92).

By consideration of a discrete metric space, show that a closed ball in a metric space need not be the closure of the open ball with the same center and the same radius. In other words, show that in the discrete metric space (X, d), for an $\varepsilon > 0$ and $x_0 \in X$,

$$\{x \in X : d(x_0, x) \leq \varepsilon\} \quad \text{need not equal} \quad \overline{\{x \in X : d(x_0, x) < \varepsilon\}}.$$