MTH 327H: Homework 5

Due: October 5, 2018

1. Office hours the sixth week of classes are M 11:30-12:30, W 3-4, and Th 9-10.

2. Read Rudin Sections 2.43-47.

3. Do problems 5, 6, 7, 8, 9, 10, and 11 in Rudin Chapter 2.

4. Consider the metric space $S = (0,1] \times [2,3) \subset \mathbb{R}^2$, equipped with the metric it inherits as a subspace of the standard metric on $\mathbb{R}^2$. Let $A = (.5,1] \times (2,2.3)$ and $B = \{(\frac{1}{n^2}, 2 + \frac{1}{n}) : n \in \mathbb{N} - \{0\}\}$. What are the closures and interiors of A and B in S?