

Part I: Read and Respond (prepare for class Wednesday, April 2)

Carefully read Section 4.3, taking notes for yourself and answering the following questions to turn in as your Part I assignment. Review the syllabus for parts (a)–(c) that should be included in this assignment.

Reading Questions

1. Discuss the similarities and differences between the definition of continuity at a point c and the definition of $\lim_{x \rightarrow c} f(x) = L$.
2. In Example 4.3.7.
 - (a) What sequence is being used to show that $[[x]]$ is discontinuous for each $m \in \mathbb{Z}$?
 - (b) Why is this sequence chosen?
 - (c) Can you think of another sequence that would achieve the same results? Discuss why your sequence would “work.”
3. Why is Theorem 4.3.9 necessary (as in, why do the things already proven not cover it)?

Part II: Exercises (prepare for class for Wednesday, April 2)

1. Exercise 4.2.5d
2. Exercise 4.2.3
3. Using the ϵ – δ characterization of continuity, show that the linear function $f(x) = ax + b$ is continuous at every point of $\mathbb{R}$.

Part III: Problems (due Wednesday, April 9 at the beginning of class)

1. (I) Exercise 4.2.10