Part I: Read and Respond (prepare for class Wednesday, March 12)

Carefully read the next part of Section 3.2, stopping when you get to the heading "Closure," 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 Question(s)

1. Give an interesting example of an open set A and a Cauchy sequence in A whose limit is not in A.
2. How would you "combine the preceding discussion with Theorem 3.2.5" to prove Theorem 3.2.10?

Part II: Exercises (prepare for class for Wednesday, March 12)

1. Exercise 3.2.1
2. For each of the following sets answer these questions: Is the set open? Is the set closed? What are the limit points of the set? What are the isolated points?
   (a) (e, π)
   (b) $\mathbb{N}$
   (c) $\mathbb{Q}$
   (d) $\left\{ \sum_{j=1}^{n} \frac{1}{j^2} : n \in \mathbb{N} \right\}$
   (e) $\{-1, 1\}$
   (f) $(0, 1]$
   (g) $\mathbb{R}^+$
   (h) $\emptyset$

Part III: Problems (due Friday, March 21 (no class on Wednesday) at the beginning of class)

1. (I) Exercise 2.3.3
2. (P) Exercise 2.7.8