

Math 401/501, Fall 2018
Assignment 8, due Wednesday, October 24

Exercises to hand in:

1. Ross, Exercise 11.4.

2. Ross, Exercise 11.8.

Note: You may assume that the sequence is bounded for the sake of simplicity, though it is possible to obtain this result formally when $\liminf_{n \rightarrow \infty} s_n = \pm\infty$. On your own, think about how you might prove these other cases. Also, recall that we proved that if S is bounded below, then $\inf S = -\sup(-S)$ where $-S = \{-s : s \in S\}$.

3. Ross, Exercise 12.4.

4. Ross, Exercise 12.6.

Hint: You may use the result in Exercise 7 of Assignment 4 in this class.

5. Ross, Exercise 12.14.

Hint: It is well known that the number e satisfies $\lim_{n \rightarrow \infty} (1 + \frac{1}{n})^n = e$. You may use this fact in this exercise.

6. Ross, Exercise 14.2.

7. Ross, Exercise 14.8.

Hint: If $a, b \geq 0$, then $(\sqrt{a} - \sqrt{b})^2 \geq 0$.

On your own: Ross, Exercises 11.1, 11.3, 11.5, 12.1, 12.3, 14.1, 14.3, 14.5, 14.7.

Reading: Ross, §11, 12, 14, 15.