Math 116 Problem Set #3 Due Fri., Sept. 21, 2018, in class.

In Apostol, Volume I, read Chapter 1, Sections 21-27, pages 77-87; and Chapter 3, Sections 1-7, pages 126-141.

1. From Apostol, Volume I, Chapter 1, Section 1.26, pages 83-84, do problems 22(a), 23, 25(a).

2. From Apostol, Volume I, Chapter 3, Section 3.6, pages 138-140, do problems 2, 6, 27.

3. From Apostol, Volume I, Chapter 3, Section 3.8, page 142, do problems 1, 7.

4. Using just the *definition* of limit, prove that $\lim_{x \to 1}(5x + 2) = 7$.

5. (a) Let f be the function on the closed interval $[0, 1]$ that was defined on Problem Set 2, problem 5. Find all values of x in the interval $[0, 1]$ such that f is continuous at x.

(b) Let $g(x) = xf(x)$ on the closed interval $[0, 1]$, where f is as in part (a). Find all values of x in the interval $[0, 1]$ such that g is continuous at x. How does your answer to (b) differ from your answer to (a)?