HOMEWORK ASSIGNMENT 4

Due in class on Wednesday, September 24.

   Page 36, Exercise 7.4, Pages 42–43, Exercises 8.3, 8.9, 8.10, plus Exercises E and F below.

E. Let $(s_n)_1^\infty$ be a convergent sequence of positive numbers whose limit, s, is also positive. Prove that $\lim_{n \to \infty} \sqrt{s_n} = \sqrt{s}$.

*F. Let $(s_n)_1^\infty$ be a convergent sequence with limit s. Let the sequence $(t_n)_1^\infty$ be defined by

$$t_n = \frac{1}{n}(s_1 + s_2 + \cdots + s_n) \quad (n \in \mathbb{N}).$$

   Prove that $\lim_{n \to \infty} t_n = s$. (Suggestion: Start by reducing to the case $s = 0$.)