Assignment 3

Turn in starred problems Wednesday, February 8, at the beginning of the period. See the remarks below for hints or modifications of several of these problems.

Exercises from Abbott, *Understanding Analysis*:
   Section 2.2: 2(a,b), 2(c)*, 4, 5, 7*, 8*
   Section 2.3: 1, 3*, 4, 5*, 6*, 7, 8

Optional extra credit problem; turn in in lecture Thursday 2/09: Abbott 2.3.11. For an extra credit problem, please to not consult any sources or work with other students. Here is a hint: if \( x = \lim_{n \to \infty} x_n \), show that one may write

\[
y_n - x = \frac{1}{n} \sum_{k=1}^{N} (x_k - x) + \frac{1}{n} \sum_{k=N+1}^{n} (x_k - x),
\]

where \( 1 \leq N \leq n \). Then make the two terms on the right hand side small by separate arguments.

Remarks, hints, and further instructions:
2.2.7: Give “compelling arguments” for your answers.
2.2.8 (a)–(c): Prove that your answers are correct.