Part I: Read and Respond (prepare for class Friday, February 7)

SKIM Section 2.1 to get the big picture—don't get bogged down in the details of double sums. Carefully read Section 2.2, taking notes for yourself and answering the following questions. Review the syllabus for parts (a)–(c) that should be included in this assignment. Here are the reading questions for part (a):

Reading Question(s)

1. Give an example of a convergent sequence and an example of a divergent sequence.
2. Relate the definition of convergence of a sequence to the definition we generally give in Calculus II for convergence of a sequence:

   Definition 1. *A sequence* (x_n) converges to a limit x *if the terms of the sequence can be made sufficiently close to* x *by taking* n *to be sufficiently large.*

Part II: Exercises (prepare for class for Friday, February 7)

1. Exercise 1.6.8
2. Exercise 2.2.3
3. Exercise 2.2.4

Part III: Problems (due Wednesday, February 12 at the beginning of class)

1. (I) Exercise 1.6.4
2. (P) Exercise 1.6.10ab. Hint: think really carefully here about what's going on and specifically what the objects are that you're working with. You're looking sets of functions, so the elements in the sets are *functions* (this seems silly when you write it out that way, but it's important!). In (a), each function has a domain of $\{0, 1\}$ and a codomain of $\mathbb{N}$. In (b), each function has a domain of $\mathbb{N}$ and a codomain of $\{0, 1\}$. A good first step in understanding what's going on in this problem (and in many problems!) is to play around with some examples.