Part I

No Part I this time.

Part II: Exercises (prepare for class for Monday, February 10)

1. Find the limit of the sequence $(a_n) = \left(\frac{1}{n^2+1}\right)$ and prove your answer using the definition of sequence convergence.
2. Suppose that for a particular $\epsilon > 0$ we have found a suitable value of N that "works" for a given sequence in the sense of the definition of sequence convergence. Fill in the blanks with "larger" or "smaller" as appropriate (the two parts below are independent of each other).
   (a) Then any _____ N will also work for this same particular $\epsilon > 0$.
   (b) Then the same N will also work for any _____ positive value of ϵ.
3. Exercise 2.2.5

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

1. (I) Find the limit and prove that the sequence converges to that limit for each of these.
   (a) $(a_n) = \left(\frac{1-n^2}{2n^2+3}\right)$
   (b) $(b_n) = \left(\frac{3n+1}{2n^2+3}\right)$
2. (P) Exercise 2.2.6