

Please answer the questions below and either turn in a paper copy in-person or make a quality scan into a single pdf and submit via email or Blackboard.

1. Prove that $\frac{n^2}{n^2-101}$ converges.
2. Section 2.1, Exercise 8.
3. Section 2.1, Exercise 11. No need to prove your example, just give an example. Provide at least some explanation of why it is bounded but doesn't converge.
4. Section 2.1, Exercise 12.
5. Prove Theorem 2.2.1, part (d).
6. Section 2.2, Exercise 19.
7. You are given that x_n converges to x and that y_n is bounded. Prove that $x_n + \frac{y_n}{n}$ converges to x .
8. Finish the proof of Theorem 2.3.6.