

**Instructions:**

- This is a recommended but not required assignment. I will post solutions on Monday, 12/14. You should work this assignment before checking the solution.
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1. Find the pointwise limit of the sequence of functions  $f_n(x) = \sqrt[n]{x}$ . Prove that the convergence is not uniform.
2. Prove that the following sequence of functions is converges uniformly to  $f(x) = 0$  on  $[0, \infty)$ .

$$f_n(x) = nxe^{-n^2x}$$