MATH 3100 – Homework #4

posted February 21, 2020; due at the **start of class** on February 28, 2020

Section and exercise numbers correspond to the online notes. Assignments are expected to be **neat** and **stapled**. **Illegible work may not be marked.**

Required problems

1. §1.7: 1
2. §1.7: 3

   Hint: If $r > 1$, show that the hypotheses of Theorem 1.7.3 hold with $f(x) = x^2 - r$ and the closed interval $[0, r]$. This choice of interval doesn't work if $0 < r \leq 1$. (Make sure you understand why!) Can you think of an interval which **does** work?
3. §1.7: 4

   Hint: This is an intermediate value theorem problem in disguise.
4. §1.7: 7
5. §2.1: 2
6. §2.1: 4 (see p. 80 for the definition of *summable*)
7. §2.1: 9
8. §2.1: 13
9. §2.1: 15

Recommended problems (NOT to turn in)

Read the lyrics and listen to the MP3 of Tom Lehrer's song "There's a delta for every epsilon": `http://www.haverford.edu/physics/songs/lehrer/delta.htm`

§1.7: 2, 5, 6
§2.1: 1, 3, 5, 6, 8, 10, 14