Ninth Homework: MATH 410
Due Wednesday, 28 October 2020

1. Exercise 1 of Section 4.3 in the text.
2. Exercise 7 of Section 4.3 in the text.
3. Exercise 11 of Section 4.3 in the text.
4. Exercise 12 of Section 4.3 in the text.
5. Exercise 16 of Section 4.3 in the text.
6. Exercise 20 of Section 4.3 in the text.
7. Exercise 21 of Section 4.3 in the text.
8. Prove the assertion of Proposition 7.8 in the notes that says L is the smallest possible Lipschitz constant.
9. Prove that $f(x) = e^{-2x}\cos(3x)$ is Lipschitz continuous over $[0, \infty)$ and find its smallest possible Lipschitz constant.
10. Suppose we are using the Newton-Raphson method to solve $x^2 - 56 = 0$. Use Proposition 7.11 in the notes to bound the error when our initial guess is 8.
11. Exercise 2 of Section 8.1 in the text.
12. Exercise 4 of Section 8.1 in the text.
13. Exercise 1 of Section 8.2 in the text.
14. Exercise 8 of Section 8.2 in the text.
15. Exercise 11 of Section 8.2 in the text.
16. Exercise 1 of Section 8.3 in the text.
17. Exercise 2 of Section 8.3 in the text.
18. Exercise 4 of Section 8.3 in the text.