

Assignment #3

Due Tuesday, 26 September at the start of class

Please read sections 3.1, 3.2, 3.3, 3.4, and 3.8 of the textbook (J. Epperson, *An Intro. to Numerical Methods and Analysis*, 2nd edition).

Section 3.1, pages 94–96:

- Exercise 1
- Exercise 3 Do parts (a), (c), (g), and (h) only.
- Exercise 6

Section 3.2, pages 101–103:

- Exercise 4
- Exercise 6
- Exercise 7

Section 3.3, pages 104–106:

- Exercise 3 Do parts (b), (e), and (h) only.

P3. Apply Newton's method to the problem discussed in lecture. Namely, find *both* points of intersection of the curve $y = e^x$ and the circle of radius 3 centered at the origin. Argue using ideas in section 3.3 that your coordinates are accurate to 8 decimal digits. (*Presumably you will write a MATLAB code for this; that's the easiest way. But you will need to be careful with initial iterates, and with stopping the iteration.*)