

# MAT-235: HOMEWORK 4

---

DUE: 10/19/2018

## Book Problems

Please do each of the following problems from the class book [1]:

Section 8.1: 4, 7, 17, 21

Section 8.2: 14, 18, 19, 21

Section 8.3: 1, 3, 5, 8, 17, 22

## Other Problems

The following problem was taken from [2]: For each of the differential equations below note that  $x_0 = 0$  is an irregular singular point. In each case determine whether the method of Frobenius will yield a solution. If so, find a solution.

I.  $x^3y'' + y = 0$

II.  $x^3y'' + xy' + 2y = 0$

## References

- [1] C. H. Edwards, D. E. Penny, and D. T. Calvis, *Differential equations and boundary value problems, computing and modeling*, 5th ed., Pearson Education, Upper Saddle River, NJ, 2019.
- [2] D. G. Zill, *A first course in differential equations with applications*, 2nd ed., PWS Publishers, Boston, MA, 1982.