Homework to Final Exam
Weeks 13-15

In the final section of the course, we will use *power series* to derive solutions to second order linear differential equations. Time permitting, we will also consider numerical solutions to differential equations.

1. Week of April 25-April 28

   - Section 6.1: 1, 3, 9, 11, 15, 16
     Also: Review the Maclaurin series for e^x, $\sin(x)$, $\cos(x)$ and the Geometric series. Use the "Brute Force Technique" to solve the following to 4th order:

     $$(x+2)y'' + 3y = 0, \quad y(0) = 0, y'(0) = 1$$

   - Section 6.1, continued: 19, 21, 23, 29
   - Section 6.2: 3, 5, 7, 9, 11

2. Week of May 2 - May 5

   - Section 6.2: 13, 15, 17, 19, (25, 27: Use Maple)
   - Intro to Linear Systems (7.1) 1, 3, 7, 9, 11, 13, 15, 17
   - Section 7.2: 1, 3, 5, 13, 19, 21, 33, 35

3. May 9, 10:

   - Section 7.2, continued.
   - Review.

Final Exam Schedule:

- For the class that meets at 9AM: **Tuesday, May 17, 2-4PM**

- For the class that meets at 11AM: **Saturday, May 14, 2-4PM**

You may take the exam at either time, but if you switch sections, PLEASE notify me by our last class session on May 10th!