Outline for Exam 3

**Ground Rules:** You can use any calculator you wish, but you’ll have to justify your results. The material will be drawn from the lectures and from section 5.3 with the material from 5.2 as necessary background.

**Linear Systems of Ordinary Differential Equations**


2. Homogeneous and inhomogeneous $n$-dimensional linear systems. The existence-unicity theorem for the initial value problem.

3. The homogeneous system. Superposition, linearly independent solutions, the general solution.

4. The homogeneous, constant-coefficient, 2-dimensional system. Finding the general solution, solving the initial value problem.

5. The phase plane. Phase portraits. Equilibria, linear orbits, nodes, spirals, centers, stable and unstable orbits.