Topics for MA 231, Exam III

April 8, 2002

NOTE: Test does not include 5.2

Section 5.1
- Solution of $y' = ky$ as $y = Ce^{kt}$.
- Exponential growth & decay, shape of exponential curves
- Half life and doubling time.
- Word problems.

Section 5.4
- Solution of $y' = ay + b$ by rewriting as $y' = k(M - y)$
  
  \[-y = M + Ce^{-kt}.\]
- What graph of solutions look like.
- Equilibrium solutions.
- Word problems.

Section 10.1
- Idea of solution and initial condition.
- More word problems using 5.1 and 5.4.

Section 10.2
- Solving a differential equation using separation of variables.
  
  \[-\text{Checking to be sure you have all the equilibrium solutions.}\]
  \[-\text{Finding explicit solution if that is requested.}\]

Section 10.3
- Be able to use Euler’s method to numerically approximate solution of a differential equation.