

# Midterm Exam-1 content:

§1.1, §1.3: Introduction, Direction Fields

## **Chapter 2. First Order Differential Equations**

§2.2: Separable equations (also homogeneous equations - see p49 #30)

§2.1: Linear equations; Method of integrating factors.

§2.3: Modeling with first order equations

§2.4: Differences between linear and nonlinear equations

§2.6: Exact equations and integrating factors

## **Chapter 7. Systems of First Order Linear Equations**

§7.1: Introduction.

§7.2: Review of matrices.

§7.3: Systems of linear algebraic equations; Linear independence, eigenvalues, eigenvectors

§7.4: Basic theory of systems of first order linear equations

§7.5: Homogeneous linear systems with constant coefficients.

§7.6: Complex eigenvalues.