Topics

Chapter 1: 1st order DE

- \( \frac{dy}{dx} = f(x) \)  
  examples: hw set 1, problems 10-14  
  hw set 4, problem 1

- Separable DE  
  examples: hw set 2, problems 1-8

- Linear (integrating factor p)  
  examples: hw set 2, problems 10-14

Chapter 2:

- Equilibrium & Stability  
  example: hw set 4, problem 6  
  (slope field would be given)

- Numerical Methods
  - Euler  
    example: test 2, problem 12a
  - Be able to recognize the formulas for IE, RK, & Taylor

Chapter 3: 2nd + order DE

- Linear Independence  
  example: hw set 6, problems 5-6  
  hw set 7, problems 1-4

- Homogeneous equations w/ constant coeff. (characteristic poly - \( \lambda \))  
  example: hw sets 6, problems 8-13  
  hw set 7, problems 5-6  
  hw set 8, problems 1-6

- Non-homogeneous equations  
  example: hw set 7, problems 7-9  
  hw set 8, problems 7-9, 12

Chapter 7: Laplace Transforms

- Laplace Transforms  
  example: hw set 10, problems 4-8

- Inverse Laplace Transforms  
  example: hw set 10, problems 9-13

- Using Laplace Transforms to Solve IVP  
  example: hw set 11, problems 1-2