MATH 226

Differential Equations

Assignment 4

Due Monday, September 26

Read Section 2.2: "Linear Equations: Method of Integrating Factors" and Section 2.3: "Modeling with First Order Equations"

Problems

Part I: Section 2.1: Separable Equations

For the starred(*) problems, you may use the *dsolve* and *ezplot* functions in MATLAB to find and plot the solutions, but also verify the solution you obtain by hand. You can copy the file *Assignment4.mlx* from the Handouts Folder for MATH0226 in Fall 22 in the Classes folder on middfiles.

You could also use the *dsolve* and *odeplot* functions in *Maple* to plot the solutions for the starred problems. You can copy the file *Assignment4.mw* from the Handouts Folder for MATH0226 in Fall 22 in the Classes folder on middfiles. I've entered the differential equations for Problems 13, 16, and 17.

Practice Problems 2.1: 1, 3, 7, 12, 13*, 16*, 17*, 21, 29, 33

Feedback Problems 2.1: 16, 29, 33

Part II: Section 2.2: Linear Equations: Method of Integrating Factors

For the starred(*) problems, use MATLAB for drawing direction fields. See the example in *Assignment4.mlx* or the introduction to MATLAB Activity file.

Practice Problems 2.2: 1*, 4*, 7*, 8*, 13, 15, 22*, 25*, 31, 35, 36, 38, 41

Feedback Problems 2.2: 4*, 22*, 36