

MATH 311 Exam I (1.1 - 2.4) Review

1. Know how to classify each differential equation (DE) as an ordinary differential equation (ODE) or partial differential equation (PDE), give its order and indicate whether its linear or nonlinear.
2. Know how to identify solutions and know the existence and uniqueness theorem for the solution of an initial value problem (IVP).
3. Know how to construct a direction field using the method of isoclines and how to use it to sketch an approximate solution.
4. Know Euler's method for constructing an approximate solution to an IVP for a first-order DE.
5. Know how to solve a first-order DE using separation of variables.
6. Know the method for solving linear first-order DEs.
7. Know how to solve exact equations.

Example exercises: Quiz & Homework questions; Ch.1 Review Problems, #1 - 17;
Ch. 2 Review Problems, #1 - 16